18th INTERNATIONAL LEPROSY CONGRESS
Hidden challenges
BRUSSELS, 16th-19th SEPTEMBER 2013

FINAL PROGRAMME AND BOOK OF ABSTRACTS
PROGRAMME AT A GLANCE

HIDDEN CHALLENGES
### Programme at a Glance

#### Monday 16 September 2013

**16:30 - 18:00**

**Opening Ceremony**
In the presence of HRH Princess Astrid of Belgium  
**Speakers:**  
- Jean-François Labille, Minister for Development Cooperation – Kingdom of Belgium  
- Kris Peeters, Minister President of the Flemish Government and Flemish Minister for Foreign Policy  
- Hiroki Nakatani, WHO Assistant Director-General – HIV/AIDS, TB, Malaria and Neglected Tropical Diseases  
- Yohei Sasakawa, WHO Goodwill Ambassador for Leprosy Elimination  
- Jarbas Barbosa, Brazilian Deputy Minister  
- René Staheli, President of ILEP  
- Kofi Nyarko, Member of the Board of Directors of IDEA  
- Cairns Smith, Chairman of the Scientific Committee of the 18th International Leprosy Congress  
- Marcos Virmond, President of ILA  

**Moderator:** Rigo Peeters, President of the Local Organising Committee

**Plenary Room A & B • Level 1**

**18:00 - 19:30**

**Welcome reception**

**Foyer • Level 0**

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#### Tuesday 17 September 2013

**09:00 - 10:30**

**Plenary Session 1: Leprosy in a changing context**  
**Chair:** Etienne Declercq  
**Speakers:** Dr Sumana Barua, Dr Julie Jacobson, Dr Joseph Kawuma  

**Plenary Room A & B • Level 1**

**10:30 - 11:00**

Coffee Break and ePoster sessions  

Foyer • Level 0

**11:00 - 12:30**

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**12:30 - 14:00**

Lunch and ePoster sessions  

Foyer • Level 0

**14:00 - 15:30**

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**15:30 - 16:00**

Coffee Break and ePoster sessions  

Foyer • Level 0

**16:00 - 17:30**

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**17:30 - 18:00**

Coffee Break  

Foyer • Level 0

**18:00 - 19:30**

How to curb the incidence of leprosy?  
Expert Group from Novartis Foundation and WHO  

Plenary Room A & B • Level 1

**19:30 - 20:30**

Cocktail reception  

Foyer • Level 0
**Wednesday 18 September 2013**

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| 09:00 - 10:30 | Plenary Session 2: Improving quality of life  
Chair: Marcos Virmond  
Speakers: Dr Dierdre Prins-Solani, Prof Mitchell Weiss, Ms Zilda Maria Borges | Plenary Room A & B • Level 1 |
| 10:30 - 11:00 | Coffee Break and ePoster sessions  
Foyer • Level 0 |                |
| 11:00 - 12:30 | Session 19  
Relapse and Drug Resistance  
Social Sciences  
New Diagnostic Tools  
Molecular Epidemiology  
Surgical Rehabilitation  
Other Mycobacterial Diseases  
Room C & D  
Work Group Area  
Plenary Room A & B  
Room E & F  
Room 1 & 2  
Room 3 & 4 |                |
| 12:30 - 14:00 | Lunch and ePoster sessions  
Foyer • Level 0 |                |
| 14:00 - 15:30 | Session 25  
Chemotherapy 2  
Human Rights and Discrimination  
Immunology 2  
Epidemiological Analyses  
Nerve Injury in Leprosy  
Les progrès récents (Session in French only)  
Room C & D  
Room 3 & 4  
Room E & F  
Work Group Area  
Plenary Room A & B  
Room 1 & 2 |                |
| 15:30 - 16:00 | Coffee Break and ePoster sessions  
Foyer • Level 0 |                |
| 16:00 - 17:30 | Session 43  
Chemotherapy - Newer Drugs  
Human Rights and Advocacy  
Immunology 3  
Innovative Approaches  
Community Based Rehabilitation  
Eye in Leprosy  
Work Group Area  
Room E & F  
Room 3 & 4  
Plenary Room A & B  
Room C & D  
Room 1 & 2 |                |
| 18:00 - 20:00 | Movie projection ‘Molokai, the true story of Father Damien’  
Plenary Room A & B • Level 1 |                |

**Thursday 19 September 2013**

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| 09:00 - 10:30 | Plenary Session 3: Reducing transmission  
Chair: Cairns Smith  
Speakers: Prof Stewart Cole, Prof Annemiek Geluk, Prof Jan Henrik Richardus | Plenary Room A & B • Level 1 |
| 10:30 - 11:00 | Coffee Break and ePoster sessions  
Foyer • Level 0 |                |
| 11:00 - 12:30 | Session 37  
Detection and Treatment of Reactions  
Social Aspects and Quality of Life  
Genetics and Leprosy  
Leprosy Control  
Reconstructive Surgery  
Specialised Centres  
Work Group Area  
Room C & D  
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Plenary Room A & B  
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Room 3 & 4 |                |
| 12:30 - 14:00 | Lunch and ePoster sessions  
Foyer • Level 0 |                |
| 14:00 - 15:30 | Session 44  
Chemotherapy - Newer Drugs  
Human Rights and Advocacy  
Immunology 3  
Innovative Approaches  
Community Based Rehabilitation  
Eye in Leprosy  
Work Group Area  
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Plenary Room A & B  
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| 15:30 - 16:00 | Coffee Break and ePoster sessions  
Foyer • Level 0 |                |
| 16:00 - 17:00 | Closing Ceremony  
Plenary Room A & B • Level 1 |                |
| 17:00 - 18:00 | ILA General Meeting  
Plenary Room A & B • Level 1 |                |
FINAL PROGRAMME AND BOOK OF ABSTRACTS
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**SPONSORS & EXHIBITORS**

- List of Sponsors
- List of Exhibitors

**VENUE MAP**

Management Centre Europe (MCE)
Esteemed colleagues,

Welcome to the 18th International Leprosy Congress, hosted in the beautiful, EU city of Brussels. Here we are again, ready to further our understanding of the millenary disease that still afflicts human beings and challenge our curiosity. The International Leprosy Association (ILA), has a proud history of over 80 years.

The Association is also proud to recognise that, its International Congresses have been a privileged platform for intense and productive discussions on the progress achieved in scientific aspects of leprosy, in genetics, immunology, microbiology, epidemiology and other areas. The ILA would like to acknowledge that, in large measure, these developments were and are being made by the members of our Association.

More interestingly, the International Congresses of ILA are equally open to non-members, highlighting that knowledge to neglected diseases, such as ours, should not impose boundaries. A reason for this, is that the ideal mission of the ILA is to be a neutral realm for sharing scientific developments; this is what makes the ILA an exceptional scientific organisation different from any others.

There is no doubt that the global picture of leprosy is different now than it was 30 years ago. It is true that widespread use of MDT and improvements in patient care led to a reduction in case numbers worldwide and also to changes in the epidemiologic features of the disease. However, it is clear that leprosy continues to be a major problem in many countries. This is due not only to the continued transmission of the disease, but also because of the potential risk of developing disabilities and deformities, with devastating social and economic consequences. On one hand, mechanisms of disease transmission and the understanding for nerve damage are still obscure areas of our knowledge. On the other hand, figures for new case detection rates and the number of new cases with grade 2 disability are still shameful in some parts of the world; and the difficulties to access MDT services are of further concern. Moreover, provision of inadequate rehabilitation programs, assurance of dignity and human rights to the individuals affected by leprosy, are a few of the nagging problems which need our utmost attention.

Therefore, we are once again at a critical point in the history of leprosy. Where hidden challenges must be addressed. We are still in need to search for reduced prevalence in selected areas of the world and to guarantee quality control measures in areas with low numbers of cases. It is also important to sustain leprosy expertise within the health service as well as to address unsolved aspects of stigma and human rights in regards to individuals that are living with leprosy. The needs are such that it calls for a full mobilisation of partners around the globe. In this connection, the inclusion of leprosy in the group of neglected tropical diseases have created new possibilities of interaction and partnership, which must not be overlooked.

The 18th International Leprosy Congress is a privileged occasion for such interaction and partnership. The International Leprosy Association looks forward to welcoming all those concerned with the burden of leprosy in the 21st century to share their experiences in Brussels. The Scientific Program, under the experienced guidance of Prof. William Carrns Smith, has been carefully prepared to fulfill all expectations from different trends within a multidisciplinary approach to leprosy as a disease, as a research model, and as a social concern.

The Damien Foundation, the host institution for the congress, has done a wonderful job to ensure that this important meeting will run smoothly and take place in a congenial atmosphere, which will surely deliver productive results.

I wish all participants a profitable stay and I hope that by the end of this meeting, your hearts and minds will be filled with renewed enthusiasm to address these hidden challenges.

Marcos Virmond
President of International Leprosy Association
Information

Hidden Challenges
BOOKING YOUR OWN CONFERENCE TRAVEL IS EASY AS ABC

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No matter where you are travelling from, the Star Alliance™ network offers you a wide choice of flights to Brussels.

And with over 21,900 flights a day to 1,329 destinations across 195 countries, our 28 member airlines extend the same choice to any future conferences you are planning to attend.

You can also save money when you book your flights. Simply quote the Convention Code SN13S13 and you plus one travelling companion will receive a special discount. Better still, no matter which Star Alliance member airline’s frequent flyer programme you belong to, you can earn and redeem miles across all 28 airlines.

For more information, or to join the airline network that offers you more choice wherever your conferences take you, simply go to www.staralliance.com/conventionsplus
The Scientific Committee acknowledges the contribution of the following:

Symposium Leaders

Reviewers for Scientific Abstracts
INSTRUCTIONS FOR PRESENTERS

ORAL PRESENTATIONS

Presenters are allotted a 15 minute total presentation time. In an effort to synchronise the parallel sessions, session chairs have been instructed to require strict adherence to this time schedule. This is to allow participants to move from one session to another without missing any of the programme.

The official format of the presentation is via data projector using Microsoft PowerPoint. Presenters will not be allowed to connect their own computers to the data projectors at the Symposium.

All presenters are requested to bring their presentations on a USB stick, to be uploaded in the speaker ready room on Monday 16th September between 12:00 – 17:00. You are requested to arrive in the meeting room 15 minutes prior to the session start in order to test your presentation. Please ensure you bring your presentation on USB in case of any difficulties. Rehearsals and significant editing will not be allowed on the symposium computers.

It is the responsibility of the individual presenters (not the organisers) to check their presentation before presenting. An audio-visual technician will be available to assist if needed.

ePOSTER PRESENTATIONS

ePosters may be viewed at any time that the congress is in session, but specific times are set aside during the coffee breaks and lunch breaks daily for individual ePoster presentations. A total of 20 ePoster stations will be made available of which 10 are dedicated to individual ePoster presentations during the breaks only. All other screens will have presentations available for free viewing throughout the congress.

Each ePoster presenter has been designated 10 minutes to present their ePoster and answer questions during one of the breaks. The times where each ePoster will be presented are listed behind the Tuesday, Wednesday and Thursday sections in this programme.

Each ePoster has been assigned a unique number (e.g., P-101) that can be used in the search function of the ePoster system and is included in this book.

Please ensure that you have your ePoster number with you when making any uploads/changes to your ePoster once onsite at the symposium.

ABSTRACTS

Three-digit abstract identification numbers are provided throughout the programme; these numbers can be used to easily identify abstracts in the Symposium Proceedings USB, received upon registration.

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DISCLAIMER

This book of abstracts has been produced using author-supplied material. Editing has been restricted to minor spelling corrections where appropriate, otherwise every effort has been made to reproduce the abstracts as originally submitted. The organiser and publishers assume no responsibility for any injury and/or damage to persons or property as a matter of product liability, negligence or otherwise, or from any use of operation of any methods products, instructions or ideas contained in the material herein. In view of rapid advances in medical sciences, independent verification of diagnosis and drug doses is recommended.
SOCIAL PROGRAMME FOR DELEGATES & ACCOMPANYING PERSONS

Please make sure to wear your badge at all social events. Accompanying persons must be registered to attend the social events during the congress.

WELCOME RECEPTION ON MONDAY 16 SEPTEMBER 2013

Place: Management Centre Europe
MCE
Rue de l’Aqueduc 118
B-1050 Brussels

Time: 18:00 – 19:30

Dress Code: Casual

We invite all registered delegates, accompanying persons and sponsors to a cocktail reception in the congress venue. Drinks and savoury snacks will be served. Attendance to this function is included in the registration fee.

COCKTAIL RECEPTION ON TUESDAY 17 SEPTEMBER 2013

Place: Management Centre Europe
MCE
Rue de l’Aqueduc 118
B-1050 Brussels

Time: 19:30 – 20:30

Dress Code: Casual

The Novartis Foundation for Sustainable Development invites all registered delegates, accompanying persons and sponsors to a welcome drink following the special session on “How to curb the incidence of leprosy?” in the congress venue. Drinks and savory snacks will be served.

NOVARTIS
Caring and curing

STUDENT AWARDS

YOUNG SCIENTIST AWARD

The ‘Young Scientist Award’ is an award presented to the 6 best Oral and ePoster presentations on the following six subjects. The recipients must be under the age of 40 at the time of the congress.

• Clinical
• Social
• Basic Science
• Epidemiology and Control
• Disability and Impairment
• Special Topics

The awards will be presented at the closing ceremony of the congress and the winners will receive a special prize.
ABOUT BRUSSELS – THE HOST CITY
Brussels is the ultimate European city. As the headquarters to the EU (European Union) and NATO it is often referred to as the capital of Europe. It is an international metropolis – a mosaic of languages, cultures, and traditions. Aside from the splendid and varied architectural styles of the city, Brussels also hosts over 80 museums, numerous tourist attractions, a vibrant nightlife, and more restaurants than you could count.

The starting point for any visit to Brussels is the Grand Place which was built as a merchant’s market in the 13th century. It serves as the centre of the city and hosts numerous concerts and festivals. Shopping in the distinctive fashion boutiques, lingering over a delicious lunch in a bistro or a top restaurant, people watching from a street cafe, or picking up a unique antique on the Sablon - Brussels is a city you can call your own.

CONGRESS DATES & VENUE
The congress is held at the Management Centre Europe, from Monday, 16th September to Thursday, 19th September 2013.

ACCESS/SECURITY
Delegates and accompanying persons are requested to wear their badges at all times, including the social events and functions for security reasons. Please do not leave any of your personal belongings unattended during the congress. A cloakroom located on the ground floor will be available at the MCE.

CAR PARKING
Car parking facilities are available in the surroundings of the MCE (Place du Châtelain - no reservations are possible - be careful on Wednesday night as there is a market taking place).

OFFICIAL LANGUAGE
The official language of the congress is English. Simultaneous interpretation will be provided in French in the plenary room only. One symposium session will be in French only.

CERTIFICATE OF ATTENDANCE
A blank certificate of attendance is provided in your congress bag.

EXHIBITION
The exhibition is held in the foyer of the MCE as follows:

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<td>Tuesday, 17th September 2013</td>
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<td>Wednesday, 18th September 2013</td>
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INSURANCE
It is strongly recommended that delegates take out adequate cover for health, travel and private liability insurance. The organisers cannot accept responsibility for personal injury, loss or damage to private property belonging to the congress delegates and accompanying persons.

DRESS CODE
Smart casual attire is requested for all scientific sessions and functions, unless otherwise stated.

CLIMATE
Brussels has a temperate, maritime climate with significant precipitation in all seasons, in September the average temperature is around 16°C degrees.

CURRENCY
The currency in Brussels, Belgium is the EURO (EUR - €). Euro notes are issued in denominations of 5, 10, 20, 50, 100, 200 and 500. Coins come in denominations of 2 & 1 Euro, and 50, 20, 10, 5, 2 and 1 cent pieces.

Exchange offices can be found in airports, certain hotels and most banks. Please bare in mind that some counters require your passport for such transaction.

BANKS
Banks are open Monday through Friday, 09:00 - 16:00 and are closed on Saturdays, Sundays and national holidays. Most of the small branches may close at lunchtime, between 13:00 and 14:00. All major credit card providers are accepted (Visa, MasterCard, American Express, Diners Club and Eurocard) as well as Traveller’s Checks. ATM machines are available throughout the city.

Credit card stops numbers:
- MasterCard: +32 (0)7 034 43 55
- Visa: +32 (0)7 034 43 55
- American Express: +32 (0)2 676 21 21
- Diners Club: +31 (0)2 206 98 00
ELECTRICITY

The electricity power supply in Belgium is 220 Volt with a European standard plug.

USEFUL TELEPHONE NUMBER

European Emergency call, Tel: 112

SAFETY RULES

As for any journey, prepare photocopies of your identity papers and keep them separately. Also keep a list of useful telephone numbers, in case you lose your credit card for example. It is always useful to know the details of diplomatic contacts for your country. Brussels is as safe as any other European tourist city. Therefore, participants are advised to take the usual prudent precautions.

SMOKING POLICY

The congress is smoke-free and smoking is not permitted inside the venue.

MOBILE PHONES

In Belgium, mobile phones use the frequency bands GSM-900 and GSM-1800. As a courtesy to other participants, please turn off your mobile phone when entering any of the meeting rooms.

PHOTOGRAPHER

An official photographer is present during the Congress. Some photographs will be available on the event’s website after the event. By registering you agree to have your picture taken.

TAXES & TIPPING

Tipping is not required in restaurants, bars, taxis and for most other services, as service charges are normally included in the price. For exceptional services, a small tip is welcomed.

TAXIS

Taxis may be picked up at ranks, may be hailed in the street by signaling to the driver (but only if you are more than 100 meters from a taxi rank) or ordered by calling one of the taxi call centres, which will send you a vehicle.

To order a taxi, please call the following number(s):
- Taxi Verts: +32-2 349 49 49
- Taxi Bleus: +32-2 268 00 00

TIME ZONE

The time in Brussels in September is GMT+2. Belgium is six hours ahead of Eastern Standard Time and nine hours ahead of Pacific Standard Time.
Speaker: Dr Sumana Barua  
Title: ‘The current global status of leprosy and the ‘Enhanced global strategy for further reducing the disease burden due to leprosy (2011-2015)’

Dr Sumana Barua is the Team Leader of the WHO’s Global Leprosy Programme (GLP). Prior to joining the GLP, Dr Barua served as the Regional Advisor for Leprosy Programme of WHO’s South-East Asia Region (2007 to 2011) and as the Medical Officer and Regional Focal Person for WHO’s Western Pacific Region from April 2002 to July 2007. Before joining WHO, he was engaged in teaching at the universities in Bangladesh and in Japan.

Dr Barua has a PhD in International Health Policy and Planning (in 1999) and obtained a Masters in Public Health degree in 1996, both from the University of Tokyo. Before becoming a Doctor in Medicine (MD) from the University of the Philippines in 1989, Dr Barua obtained a Bachelor of Science in Community Health degree from the same University.

Speaker: Dr Julie Jacobson  
Title: ‘Leprosy within the context of Neglected Tropical Diseases’

Julie Jacobson currently supports grants working towards the control of neglected tropical diseases and works with the development and implementation of new vaccines. As former Scientific Director of Immunization Solutions and Director of PATH’s Japanese encephalitis (JE) project, she managed a grant to accelerate the control of JE in endemic countries. Previously, she was responsible for prioritising and designing field activities for PATH’s Children’s Vaccine Project in the areas including yellow fever and rotavirus. Prior to joining PATH, Dr. Jacobson worked at the U.S. Centers for Disease Control and Prevention as an Epidemic Intelligence Officer. Dr. Jacobson is a physician with training in clinical tropical medicine and applied epidemiology.

Speaker: Dr Herman Joseph Ssekamatte Kawuma  
Title: ‘Delivering leprosy services within the context of general health services’

Dr. Herman Joseph Ssekamatte Kawuma is currently employed as Medical Advisor, German Leprosy and TB Relief Association (GLRA/DAHW) in Uganda. He is a member (out-going Chair) of the WHO Technical Advisory Committee (TAG) on Leprosy.


He participated in the 12th to 17th International Leprosy Congresses and was a Councilor of IIA 1994-2008. Between 1983 and 2002 he was Medical Superintendent, Clinician and Trainer at Uganda’s national referral and training centre for leprosy. For part of that time he was also Deputy Manager of the National TB/Leprosy Programme.
Speaker: Dr Diedre Prins-Solani
Title: ‘Human rights and justice’

Deirdre Prins-Solani a University of Cape Town alumni has worked and practiced as an educationist, heritage practitioner, museologist and international heritage consultant.

She championed the development of experimental heritage educational programmes together with international partners and interdisciplinary team members and has numerous publications. Was Chairperson of the South African Museums Association (SAMA), the International Council of African Museums (AFRICOM) a committee member of the Institutions of Public Culture, and a member of the South African Qualifications Authority (SAQA) National Standards Body.

She is a Salzburg Global Seminar Fellow and faculty member and an expert to the UNESCO 2003 Convention on Intangible Cultural Heritage. As a 1972 World Heritage Convention expert, she trains heritage professionals in its implementation and assists various states parties in nomination dossier development.

Her work in capacity building for custodians of heritage has spanned the African continent and globally. Currently she manages the Museum of AIDS in Africa, experimental programme: “Healing through Memory” and works with IDEA in developing a heritage conservation programme for sites related to peoples and stories of Hansen’s Disease.

Speaker: Prof Mitchell Weiss
Title: ‘Understanding stigma and self-esteem’

Mitchell Weiss is a health social scientist at the Swiss Tropical and Public Health Institute, and a professor at the University of Basel. His research group has developed integrated quantitative and qualitative research methods for a cultural epidemiology of suicide, tuberculosis, malaria, leprosy and other neglected tropical diseases. The approach focusses on the role of culture and the patterns of experience and meaning of illness, with reference to the community effectiveness of interventions and services for disease control in India and Africa. Stigma, gender and the impact of media are cross-cutting interests of his research.

Speaker: Ms Zilda Maria Borges
Title: ‘Understanding being affected by leprosy’

Zilda Maria Borges is a pedagogue; a psychologist specialised in Public and Family Health. She has worked in communities with the periphery Education Program Popular Health, and is president of the Brazilian Association of Psychosocial Accompaniment to Dignidade Integration and Economic Advancement (IDEA), an association which offers counselling to individuals affected by leprosy and child victims of violence and neglect. She also helps coordinate the Psychological Accompaniment Project for people affected by Hansen’s disease and Tuberculosis, and works with people suffering from autism and schizophrenia. All the projects Zilda is involved in endeavor to build dignity for those who are suffering prejudice because of a disease.
Speaker: Prof Stewart Cole  
Title: ‘Mycobacterial and human host genomics in transmission of leprosy’

Professor Stewart Cole is an international authority in bacterial molecular-genetics and genomics. He has made outstanding contributions in several fields including: bacterial anaerobic electron transport; genome analysis of retroviruses and papillomaviruses; antibiotic resistance mechanisms; and the molecular microbiology of toxigenic clostridia. His studies on isoniazid and multidrug resistance in Mycobacterium tuberculosis, together with his pioneering work on the pathogenicity, evolution and genomics of the tubercle and leprosy bacilli, have made him an undisputed leader in the field of mycobacterial research. The findings of his research are of direct relevance to public health and disease-control in both the developing world and the industrialised nations. He has published over 250 scientific papers and review articles, and holds many patents.

Professor of Microbial Pathogenesis  
Head of UPCOL, a world-class research unit dedicated to TB drug discovery, unravelling the pathogenesis of tuberculosis and studying the phylogeography of leprosy. Director of the Global Health Institute

Speaker: Prof Annemieke Geluk  
Title: ‘Immunodiagnostic tools for leprosy: exposure, infection and disease’

Dr. Annemieke Geluk, is an immunologist and chemist, she worked at the University of Virginia, Charlottesville, USA (1988) and at Cytel Corporation, San Diego, USA (1993) and obtained her PhD from the University of Leiden, The Netherlands (1995). She received postdoctoral training at the Mayo Clinic, Rochester, USA (1996/1997). In 1996 the Royal Dutch Academy of Sciences acknowledged her a fellowship during which she focused on Immunology of Leprosy and TB.

Her current research focusses on Immunodiagnostics of Leprosy including basic-, translational, applied- as well as field research. She is a SC-member of the IDEAL consortium and European TBVI consortium.

Speaker: Prof Jan Henrik Richardus  
Title: ‘Contacts centred strategies to reduce transmission’

Prof. Jan Henrik Richardus a professor in infectious diseases and public health. His current research activities focus on infectious disease control, in particular the development and assessment of control strategies using epidemiological methods such as mathematical modeling. He has also initiated studies focusing on social and behavioral aspects of prevention of infectious diseases. Prof. Jan Henrik Richardus has special interest in infectious diseases with a chronic course and long-term complications, e.g. the mycobacterial diseases tuberculosis and leprosy, and viral hepatitis B. Due to his previous work overseas; he has a longstanding experience with leprosy. His areas of expertise are the epidemiology of transmission of M. leprae and the prevention of disabilities in leprosy patients.
Monday 16 September 2013

16:30 - 18:00

Opening Ceremony
In the presence of HRH Princess Astrid of Belgium

Speakers:
Jean-Pascal Labille
Minister for Development Cooperation – Kingdom of Belgium
Kris Peeters
Minister President of the Flemish Government and Flemish Minister for Foreign Policy
Hiroki Nakatani
WHO Assistant Director-General – HIV/AIDS, TB, Malaria and Neglected Tropical Diseases
Yohei Sasakawa
WHO Goodwill Ambassador for Leprosy Elimination
Jarbas Barbosa
Brazilian Deputy Minister
René Staheli
President of ILEP
Kofi Nyarko
Member of the Board of Directors of IDEA
Cairns Smith
Chairman of the Scientific Committee of the 18th International Leprosy Congress
Marcos Virmond
President of ILA

Moderator: Rigo Peeters
President of the Local Organising Committee

18:00 - 19:30

Welcome Reception

Foyer • Level 0
## Tuesday 17 September 2013

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<td>Plenary Session 1: Leprosy in a changing context</td>
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|                    | **Chair:** Etienne Declercq  
<p>|                    | <strong>Speakers:</strong> Dr Sumana Barua, Dr Julie Jacobson, Dr Joseph Kawuma                         |                                |
| 10:30 - 11:00      | Coffee Break and ePoster sessions                                                          | Foyer • Level 0                |
| 11:00 - 12:30      | Session 1: Best Clinical Practice                                                           | Room E &amp; F                     |
|                    | Session 2: Stigma                                                                          | Room C &amp; D                     |
|                    | Session 3: Molecular Biology 1                                                              | Room 1 &amp; 2                     |
|                    | Session 4: Leprosy Control - Urban and Special Populations                                  | Plenary Room A &amp; B             |
|                    | Session 5: Nerve Function and Impairments                                                    | Room 3 &amp; 4                     |
|                    | Session 6: Training in Leprosy                                                              | Work Group Area                |
| 12:30 - 14:00      | Lunch and ePoster sessions                                                                 | Foyer • Level 0                |
| 14:00 - 15:30      | Session 7: Chemotherapy 1                                                                   | Room 1 &amp; 2                     |
|                    | Session 8: Information, Education and Communication                                         | Room C &amp; D                     |
|                    | Session 9: Immunology 1                                                                     | Work Group Area                |
|                    | Session 10: Chemoprophylaxis and Contacts                                                    | Room E &amp; F                     |
|                    | Session 11: Footwear                                                                      | Room 3 &amp; 4                     |
|                    | Session 12: Leprosy and NTDs                                                                | Plenary Room A &amp; B             |
| 15:30 - 16:00      | Coffee Break and ePoster sessions                                                          | Foyer • Level 0                |
| 16:00 - 17:30      | Session 13: ENL Reaction 1                                                                  | Room E &amp; F                     |
|                    | Session 14: History of Leprosy 1                                                             | Room 3 &amp; 4                     |
|                    | Session 15: Microbiology                                                                    | Room C &amp; D                     |
|                    | Session 16: Epidemiological Surveillance                                                     | Plenary Room A &amp; B             |
|                    | Session 17: Prevention of Disability                                                        | Room 1 &amp; 2                     |
|                    | Session 18: Vaccines                                                                       |                                |
| 17:30 - 18:00      | Coffee Break                                                                               | Foyer • Level 0                |
| 18:00 - 19:30      | How to curb the incidence of leprosy?                                                       | Plenary Room A &amp; B • Level 1   |
|                    | Expert Group from Novartis Foundation and WHO                                               |                                |
| 19:30 - 20:30      | Cocktail Reception                                                                          | Foyer • Level 0                |</p>
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<td>IS COUNTING LESIONS ENOUGH: THE SIGNIFICANCE OF SLIT SKIN SMEARS AND BIOPSY HISTOPATHOLOGY IN THE CLINICAL DIAGNOSIS, TREATMENT AND CLASSIFICATION OF LEPROSY PATIENTS</td>
<td>Dr Maria Leide</td>
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<td>COUNTING LESIONS IN THE PHILIPPINES OFTEN MISCLASSIFIES PATIENTS AS PB THAT ARE MB BY EARLIER CRITERIA</td>
<td>Robert Gelber</td>
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<td>“TRACK” IMPAIRMENTS &amp; DISABILITIES – AN INNOVATIVE TECHNIQUE TO TEACH SELF-CARE IN THE COMMUNITY LEVEL</td>
<td>Sathish Pau</td>
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<td>SHORT EXTENSION OUTRIGGER SPLINT TO RELEASE PROXIMAL INTERPHALANGEAL (PIP) JOINT CONTRACTURES IN CLAWED FINGERS IN LEPROSY</td>
<td>Karthikeyan Govindasamy</td>
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<td>ROLES OF LAY COUNSELORS IN REDUCING SELF STIGMA RELATED LEPROSY IN THE STIGMA ASSESSMENT REDUCTION OF IMPACT (SARI) PROJECT IN CIREBON, INDONESIA</td>
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<td>SARI PROJECT METHODS AND BASELINE STUDIES</td>
<td>Wim van Brakel</td>
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<td>COMPARING THE QUALITY OF LIFE OF LEPROSY AFFECTED AND THOSE WITH OTHER STIGMATISED DISEASES</td>
<td>Priya Gangadharan</td>
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<td>COMPARING THE ATTITUDE AND PERCEPTION OF COMMUNITY MEMBERS REGARDING LEPROSY AND TUBERCULOSIS RELATED STIGMA</td>
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<td>ARMADILLO: AN OLD MODEL NEWLY EMERGING</td>
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<td>GENOME-WIDE SCREENING OF MiRNA AND MRNA EXPRESSION IN LEPROSY</td>
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<td>MYCOBACTERIUM LEPRAE INFECTION TRIGGERS A TYPE-I INTERFERON-DEPENDENT OLIGOADENYLATE SYNTHETASE-LIKE (OASL) ANTI-MICROBICIDAL GENE</td>
<td>Thiago Toledo</td>
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### Leprosy Control – Urban and Special Populations
**Chair:** Dr Maravic Balagon  
**Room:** A & B

1. **O-018**
   - Identification and Sharing of Expertise & Good Practices in Urban Leprosy  
   **Presenter:** Dr Ma Victoria Balagon

2. **O-019**
   - Feedback from Persons Affected on Leprosy Services in Urban Areas - A Rapid Assessment Study  
   **Presenter:** Venkata Ranganadha Rao Pemmaraju

3. **O-020**
   - Gender Differences in Intolerance to Multi-Drug Therapy (MDT) for Leprosy  
   **Presenter:** Mauricio Nobre

4. **O-021**
   - “Leprosy Epidemic” in a Rural Sri Lankan Community  
   **Presenter:** Dr T M E Dabrera

5. **O-022**
   - Leprosy in Under-Privileged Tribal Pocket in South India  
   **Presenter:** Mr S Madhan

6. **O-023**
   - Special Awareness Drive for New Case Detection in Urban Slums of Mumbai  
   **Presenter:** Dr Atul Shah

### Nerve Function and Impairments
**Chair:** Dr Jose Garbino  
**Room:** 3 & 4

7. **O-024**
   - Prevalence and Characteristics of Leprosy-Related Neuropathic Pain: Validation of Two Tools  
   **Presenter:** Dr Irina Raicher

8. **O-025**
   - Software for Assessing Nerves in Leprosy  
   **Presenter:** Jose Garbino

9. **O-026**
   - Technical Specifications for Rehabilitation Devices Provided for Leprosy Affected Patients by The Leprosy Mission Trust India – A Review  
   **Presenter:** Mr Sathish Paul

10. **O-027**
    - Effect of Tactile Sensors in Detecting Pressure Threshold of Anesthetic Hands  
    **Presenter:** Mr Sathish Paul

11. **O-028**
    - The Effectiveness of Modified Felted Foam Dressing in Chronic Planar Ulcer Treatment in Persons Affected by Leprosy at Raj Pracha Samasai Institute, Samutprakan Province  
    **Presenter:** Thanayakittikul Pojana

12. **O-029**
    - Association Degree of Physical Disability and Postural Control in Subjects with Leprosy  
    **Presenter:** Clarice Tanaka

### Training in Leprosy
**Chair:** Dr Chris Schmotzer  
**Room:** Work Group Area

13. **O-030**
    - Building Capacity and Competence for Leprosy within Integrated Programmes  
    **Presenter:** Chris Schmotzer

14. **O-031**
    - Sustainability of Leprosy Services and Financial Self-Reliance of an Erstwhile Leprosy Hospital: Sharing Experiences from TLM Community Hospital at Delhi Metropolis India.  
    **Presenter:** Stephen Levi

15. **O-032**
    - Effectiveness of Training Occupational Therapy and Physiotherapy Interns in Leprosy  
    **Presenter:** Mrinmoy Karmakar

16. **O-033**
    - The Experience of Leprosy Dermatosis Training for Family Health Professionals in Pirai, Rio de Janeiro  
    **Presenter:** Artur Gosling

17. **O-034**
    - The Development of a Training Needs Analysis in Leprosy Control for National Programmes  
    **Presenter:** Mr Henk Eggens
### Chemotherapy 1
**Chair:** Dr. Digafe Alembo  
**Room:** 1 & 2

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| 0-035   | PRIMARY RESULTS OF CLINICAL TRIAL OF UNIFORM MULTIDRUG THERAPY FOR LEPROSY PATIENTS IN BRAZIL (U-MDT/CT-BR): REACTIONS FREQUENCY IN MULTIBACILLARY PATIENTS  
*Presenter:* Maria Lucia Penna |
| 0-036   | PHARMACOKINETICS OF CLOFAZIMINE WITH MULTIPLE DOSE ADMINISTRATION IN LEPROSY PATIENTS  
*Presenter:* Krishnamurthy Venkatesan |
| 0-037   | CLINICAL CHARACTERISTICS AND OUTCOME IN MULTIBACILLARY(MB) LEPROSY PATIENTS TREATED WITH 12 MONTHS WHO MULTIDRUG THERAPY MB REGIMEN (MDT MBR): A RETROSPECTIVE ANALYSIS OF 730 PATIENTS FROM INDIA  
*Presenter:* Bhushan Kumar |
| 0-038   | EFFICACY OF UNIFORM MULTI-DRUG THERAPY (U-MDT) FOR LEPROSY: PRELIMINARY EVIDENCE FROM WHO / TDR INTERNATIONAL OPEN TRIAL  
*Presenter:* Sanjay Mehendale |
| 0-039   | EFFECTIVENESS OF SINGLE DOSE CHEMOTHERAPY IN MAUCIBACILLARY LEPROSY PATIENTS: SUMMARY OF EVIDENCE FROM CLINICAL TRIALS IN INDIA  
*Presenter:* Dr. Ponnaiah Manickam |
| 0-040   | ‘PATIENTS WITH PROBLEMS’ IN A COHORT OF 482 LEPROSY CASES RELEASED FROM WHO - MDT BETWEEN APRIL 2005 AND MARCH 2010 IN 2 AREAS IN MAHARASHTRA STATE, INDIA.  
*Presenter:* Vanaja Shetty |

### Information, Education and Communication
**Chair:** Dr. June Nash  
**Room:** C & D

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*Presenter:* Vivek Lal |
| 0-042   | LEPROSY CASE DETECTION THROUGH SCHOOL SURVEY IN POST-INTEGRATION PHASE IN INDIA  
*Presenter:* Shibu George |
| 0-043   | MODERNISING THE FIGHT AGAINST LEPROSY - PILOT ON SCHOOLS DEBATES  
*Presenter:* Joseph Chukwu |
| 0-044   | HOUSEHOLD SURVEY ABOUT THE PERCEPTIONS OF POPULATION ABOUT HANSEN’S DISEASE IN A HIPERENDEMIC AREA FROM BRAZIL  
*Presenter:* Francisco Carlos Lana |
| 0-045   | CHANGES IN THE LEVEL OF KNOWLEDGE, ATTITUDE AND PRACTICE OF COMMUNITY MEMBERS REGARDING LEPROSY AND DIABETES MELLITUS THROUGH INTENSIVE COMMUNITY SENSITIZATION PROGRAM.  
*Presenter:* Dr. Mannam Ebenezer |

### Immunology 1
**Chair:** Professor Warwick Britton  
**Room:** Work Group Area

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*Presenter:* Indira Nath |
| 0-048   | ROLE OF TH17 CELLS IN THE LEPROSY SPECTRUM  
*Presenter:* Indira Nath |
| 0-049   | REGULATORY T CELLS IN LEPROMATOUS LEPROSY  
*Presenter:* Kidist Bobosha Aboma |
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<td><strong>Late Leprosy Contact Examination May Have Low Impact in the Transmission Rate</strong></td>
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<td>Protective Footwear Supply to Four Northern States Under the Disability Prevention &amp; Medical Rehabilitation (DPMR) Activities of the National Leprosy Eradication Program (NLEP) in India</td>
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<td><strong>Preliminary Study on Plantar Skin Resilience and Plantar Padding in the Anaesthetic Foot in Leprosy</strong></td>
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<td><strong>Study of Satisfaction Level of Patients with Micro Cellular Rubber Footwear in Bihar &amp; Jharkhand, India</strong></td>
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<td><strong>Moulded Insole Fabrication for Foot Deformities in Leprosy Affected Patients Using Computer Tomographic Images</strong></td>
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<td><strong>Acceptability and Current Practice Regarding Footwear for People with Insensitive Feet Due to Leprosy</strong></td>
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## History of Leprosy 1
**Chair: Dr Jo Robertson**
**Room: E & F**

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<td>Jo Robertson</td>
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<td>Four Pillars of Collaboration: Organizing International Leprosy Research, 1897-1933</td>
<td>Magnus Vollset</td>
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<td>O-074</td>
<td>Leprosy, Democracy and Citizenship in Korea Under American Occupation (1945 - 1948)</td>
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## Microbiology
**Chair: Dr Davendra Chauhan**
**Room: 3 & 4**

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<td>O-079</td>
<td>Expression analysis of genes related to metabolism and virulence of Mycobacterium leprae during infection in human host by microarray.</td>
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<td>O-080</td>
<td>Interaction of Mycobacterium leprae with human airway epithelial cells: Adherence, Invasion, Survival and Identification of Potential Adhesins by Surface Proteome Analysis</td>
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<td>O-081</td>
<td>M. leprae modulates glucose uptake and metabolism in the host cell</td>
<td>Flavio Lara</td>
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<td>O-082</td>
<td>Mycobacterium leprae induces cholesterol accumulation in infected macrophages by upregulating the expression of low density lipoprotein receptors and the de novo cholesterol synthesis</td>
<td>Marcia Moreira</td>
</tr>
</tbody>
</table>
Epidemiological Surveillance
Chair: Dr Etienne Declercq
Room: C & D

- PREVALENCE OF DISABILITY IN PREVIOUSLY UNDETECTED LEPROSY CASES: RESULTS OF A POPULATION SURVEY IN TWO STATES OF INDIA
  Presenter: Kumar Anil

- CLINICAL AND SEROLOGIC COHORT IN HYPERENDEMIC AREAS OF THE BRAZILIAN AMAZON REGION: HIGH RATE OF UNDIAGNOSED LEPROSY AND SUBCLINICAL INFECTION
  Presenter: Josafá Barreto

- VALIDATING DISEASE BURDEN DUE TO LEPROSY FROM EPIDEMIOLOGICAL PERSPECTIVE IN 31 LOW ENDEMIC BLOCKS OF 12 HIGH ENDEMIC DISTRICTS IN MAHARASHTRA STATE, INDIA
  Presenter: Ashutosh Prabhavalkar

- COMPARATIVE TREND ANALYSIS OF NEW LEPROSY CASES REPORTED TO TERTIARY INSTITUTION OF ENDEMIC DISTRICT AND STATE OF CENTRAL INDIA (2001-12): HOW FAR IS ELIMINATION?
  Presenter: Aparna Pandey

- DEVELOPMENT OF LEPROSY DATA BASE USING UCHA AND GEOGRAPHICAL INFORMATION SYSTEM OF LEPROSY CONTROL IN THAILAND
  Presenter: Dr. Boosbun Chua-Intra

- IN SEARCH OF REMAINING FOClI: MAPPING NEWLY REGISTERED LEPROSY CASES IN 14 STATES IN SOUTHERN NIGERIA
  Presenter: Anthony Meka

Prevention of Disability in Leprosy
Chair: Dr Hugh Cross
Room: A & B

- INTEGRATED PREVENTION OF DISABILITY (IPoD) PROGRAMME IN RURAL SET UP OF MUNGER DISTRICT, BIHAR (INDIA)
  Presenter: Rajni Singh

- TWO RANDOMIZED CONTROLLED CLINICAL TRIALS TO STUDY THE EFFECTIVENESS OF PREDNISOLONE TREATMENT IN PREVENTING AND RESTORING CLINICAL NERVE FUNCTION LOSS IN LEPROSY: THE TENLEP STUDY PROTOCOLS
  Presenter: Inge Wagenaar

- FACTORS CONTRIBUTING TO ADDITIONAL DISABILITIES DURING TREATMENT IN LEPROSY PATIENTS IN THAILAND
  Presenter: Thanyakittikul Pojana

- EVOLUTION OF DISABILITIES IN INDIVIDUALS WITH LEPROSY REACTIONS AFTER RELEASE FROM MULTIDRUG THERAPY IN BRAZIL
  Presenter: Maria De Jesus Alencar

- REVISITING THE WORSENING OF NERVE IMPAIRMENT AFTER MDT
  Presenter: Marcia Jardim

Vaccines
Chair: Dr Malcolm Duthie
Room: 1 & 2

- IS THERE A ROLE FOR A VACCINE IN LEPROSY CONTROL?
  Presenter: Malcolm Duthie

- A NOVEL VACCINE DEVELOPMENT AGAINST LEPROSY
  Presenter: Masahiko Makino

- IMPACT OF PGL-1 SEROPOSITIVITY ON THE IMMUNE RESPONSE TO MYCOBACTERIUM LEPRAE ANTIGENS
  Presenter: Roberta Pinheiro

- EVOLUTION OF THE ANTIBODY RESPONSE IN HEALTHY HOUSEHOLD CONTACTS THAT PROGRESSED TO CLINICALLY DIAGNOSED HANSEN’S DISEASE
  Presenter: John Spencer
COFFEE BREAK ePOSTERS

**10:30 – 11:00**

**Best Clinical Practice**

**Screen 1, 10:30 - 10:40**

**POST CALAZAR DERMAL LEISHMANIASIS AND ERYTHEMA NODOSUM LEPROSUM: CASE REPORT AND LITERATURE REVIEW**

**Presenter:** Maria Angela Trindade

**Screen 1, 10:40 - 10:50**

**IRON-CONTAINING PROTEINS AS A MARKER OF M. LEPRAE PERSISTENCE IN LEPROSY PATIENTS IN THE CLINICAL REGRESSION STAGE**

**Presenter:** Prof. Dr Oleg Degtyarev

**Screen 1, 10:50 - 11:00**

**PREVALENCE AND CHARACTERISTICS OF NEUROPATHIC PAIN IN TREATED LEPROSY PATIENTS IN A TERTIARY CARE REFERENCE HOSPITAL**

**Presenter:** Artur Gosling

**Epidemiological Surveillance**

**Screen 2, 10:30 - 10:40**

**CLINICAL AND EPIDEMIOLOGICAL LEPROSY PROFILE AMONG CHILDREN BELOW 15 YEARS OLD DIAGNOSED AT THE FUNDACAO ALFREDO DA MATTA IN MANAUS, BRAZIL FROM JANUARY 2006 TO DECEMBER 2011**

**Presenter:** Maria Da Graca Cunha

**Screen 2, 10:40 - 10:50**

**THE ACTUAL STATE OF LEPROSY IN ESTONIA – AN UPDATE REPORT AFTER 20 YEARS**

**Presenter:** Attyla Drabik

**Screen 2, 10:50 - 11:00**

**A SYSTEMATIC REVIEW ON THE EPIDEMIOLOGICAL DATA OF ERYTHEMA NODOSUM LEPROSUM, A TYPE 2 LEPROSY REACTION**

**Presenter:** Erik Post

**Epidemiological Surveillance**

**Screen 3, 10:30 - 10:40**

**SEROPOSITIVITY ANTI PGL-I IN HOUSEHOLD CONTACTS OF CASES DIAGNOSED WITH LEPROSY**

**Presenter:** Ana Paula Cavalcato

**Screen 3, 10:40 - 10:50**

**DEGREE OF DEFORMITY IN LEPROSY CASES DIAGNOSED IN CHILDREN UNDER 15 YEARS OLD AND ITS RELATIONSHIP WITH OPERATIONAL AND EPIDEMIOLOGICAL FACTORS**

**Presenter:** Angélica Fabri

**Screen 3, 10:50 - 11:00**

**DEATHS BY LEPROSY AS THE UNDERLYING CAUSE MATO GROSSO FROM 2000 TO 2007.**

**Presenter:** Eliane Ignotti

**Prevention of Disability**

**Screen 4, 10:30 - 10:40**

**KEY MODALITIES OF FIELD AREA DISABILITY CARE**

**Presenter:** Dr Atul Shah

**Screen 4, 10:40 - 10:50**

**DPMR CAMPS - A PRAGMATIC APPROACH TO RENDER DISABILITY CARE SERVICES AND TRAIN HEALTH CARE STAFF**

**Presenter:** Dr Atul Shah

**Screen 4, 10:50 - 11:00**

**MONITORING OUTCOMES AT THE END OF ANTIBIOTIC TREATMENT USING BUDI, POD AND BUFFAL FORMS WITH 23 NEW CASES IN 2012 AT KUKUOM HEALTH CENTER ASUNAFO SOUTH DISTRICT, BRONG AHAFO REGION OF GHANA**

**Presenter:** Linda Lehman

**Leprosy Control - Urban and Special Populations**

**Screen 5, 10:30 - 10:40**

**CHILD CARE CAMPS FOR DISABILITY PREVENTION AND CARE FOR RFT CASES**

**Presenter:** Dr Atul Shah

**Screen 5, 10:40 - 10:50**

**IMPARTING AWARENESS ABOUT LEPROSY AMONG CHILDREN OF MADRASAS SCHOOLS, AS A NEW CASE DETECTION METHOD**

**Presenter:** Abraham Selvasekar

**Screen 5, 10:50 - 11:00**

**RELAPSE OF HANSEN’S DISEASE DIAGNOSED BY LEPROMA IN NASAL CAVITY A CASE REPORT**

**Presenter:** Yoshiko OKANO

**Leprosy Control - Urban and Special Populations**

**Screen 6, 10:30 - 10:40**

**EPIDEMIOLOGICAL SITUATION OF LEPROSY IN URBAN AREAS IN INDIA - A RAPID ASSESSMENT STUDY**

**Presenter:** Venkata Ranganadha Rao Pemmaraju

**Screen 6, 10:40 - 10:50**

**TREND OF SMEAR POSITIVE CASES IN THE URBAN SLUMS OF MUMBAI – A FIELD STUDY IN MUMBAI**

**Presenter:** Vivek Pai

**Screen 6, 10:50 - 11:00**

**TWO WOMEN FROM THE SAME FAMILY WITH SIMILAR EXPERIENCES WITH LEPROSY**

**Presenter:** Nicole Holmes

**History of Leprosy**

**Screen 7, 10:30 - 10:40**

**HISTORY OF LEPROSY IN SPAIN**

**Presenter:** Jose Terencio de las Aguas

**Screen 7, 10:40 - 10:50**

**DIVERSITY OF MYCOBACTERIUM LEPRAE ON THE BASIS OF REPETITIVE SEQUENCES OF TTC FROM ANCIENT BONES FOUND IN BALI AND EAST NUSA TENGGARA, EAST INDONESIA**

**Presenter:** Birno aksono
**Best Clinical Practice**

**Screen 1, 12:30 - 12:40**  
P-005  
HOW TO SET UP PAINLESS SKIN SMEAR FOR AFB AT YOUR CLINIC  
**Presenter:** Dr Kiran Koduri

**Screen 1, 12:40 - 12:50**  
P-004  
OROPHARYNGEAL DISEASE AS THE INITIAL PRESENTATION OF LEPROSY  
**Presenter:** Mamina Turegano

**Screen 1, 12:50 - 13:00**  
P-007  
COMMITMENT OF THE TWENTY NAILS IN A PATIENT WITH LEPROSY: SIX MONTHS AGO, PATIENT COMPLAINED OF NUMBNESS IN LEGS AND INVOLVEMENT OF THE NAILS; CUTANEOUS LYMPH SMEAR POSITIVE; HISTOLOGY: ZIEHL-NEELSEN ACID-FAST BACILLI POSITIVE; NAIL PLATE DISTROPHIC  
**Presenter:** Prof Mecciene Rodrigues

**Screen 1, 13:00 - 13:10**  
P-008  
HISTOID LEPROSY: A RETROSPECTIVE STUDY OF THE CLINICAL EVOLUTION OF PATIENTS DIAGNOSED IN MANAUS, BRAZIL FROM 1990 TO 2010  
**Presenter:** Maria Manoja

**Screen 1, 13:10 - 13:20**  
P-012  
FEATURES OF LEPROSY PATIENTS WITH DIABETES MELLITUS  
**Presenter:** Dr Viacheslav Tssemba

**Screen 1, 13:20 - 13:30**  
P-013  
USAGE OF SYSTEMIC ENZYME THERAPY IN THE COMPLEX TREATMENT OF CHRONIC HEPATITIS IN LEPROSY PATIENTS  
**Presenter:** Dr Olga Mesniankina

**Screen 1, 13:30 - 13:40**  
P-014  
COST EFFECTIVE AESTHETIC PROSTHESIS FOR THE ABSORBED DIGITS DUE TO LEPROSY  
**Presenter:** Mr Manivannan Govindaraju

**Screen 1, 13:40 - 13:50**  
P-016  
CLINICOPATHOLOGICAL CORRELATION IN LEPROSY: 5 YEAR RETROSPECTIVE ANALYSIS IN A TERTIARY CARE CENTRE OF NORTH INDIA  
**Presenter:** Vijay Jain

**Screen 1, 13:50 - 14:00**  
P-017  
CLINICOHISTOPATHOLOGICAL CORELATION IN HANSEN’S DISEASE: A STUDY OF 150 CASES IN SOUTH INDIA  
**Presenter:** Dr. Shamant S

**Epidemiological Surveillance**

**Screen 2, 12:30 - 12:40**  
P-164  
POST ELIMINATION SCENARIO IN LEPROSY  
**Presenter:** Amar Kant Jha Amar

**Screen 2, 12:40 - 12:50**  
P-165  
LEPROSY AMONG MIGRANT WORKERS: ENSURING PROPER TREATMENT  
**Presenter:** Yasin Alqubati
12:30 – 14:00

Screen 2, 12:50 - 13:00
LEPROSY ELIMINATION IN BANGLADESH: WHAT CHANGED AND WHAT NOT?
Presenter: Shahed Hossain

Screen 2, 13:00 - 13:10
THE LEPROSY SITUATION IN LIBERIA: THE NEED FOR URGENT INTERNATIONAL ACTION
Presenter: Ayodele Awe Poster

Screen 2, 13:10 - 13:20
CHINA’S GUIZHOU QIANNAN LEPROSY POP AND SURVIVORS LIVING SITUATION INVESTIGATION
Presenter: Dr Minghong Gu

Screen 2, 13:20 - 13:30
ESTIMATES OF PERSONS WITH GRADE 2 RESIDUAL MORBIDITY ATTRIBUTABLE TO LEPROSY
Presenter: Venkata Ranganadha Rao Pemmaraju

Screen 2, 13:30 - 13:40
"CLINICO- EPIDEMIOLOGICAL FEATURES OF NEW LEPROSY CASES AT CENTRAL LEPROSY TEACHING AND RESEARCH INSTITUTE, CHENGALPATTU, INDIA” – A THREE YEAR PROSPECTIVE STUDY
Presenter: Vivekanand Giri

Screen 3, 12:30 - 12:40
EVALUATION OF THE EFFECTIVENESS OF THE FAMILY HEALTH STRATEGY ON THE ENDEMICITY OF LEPROSY- REVIEW OF THE LITERATURE REVIEW AND PRESENTATION OF THE STATE OF SÃO PAULO, BRAZIL
Presenter: Maria Angela Trindade

Screen 3, 12:40 - 12:50
ASPECTS ET MORPHOLOGIE DES LÉSIONS CUTANÉES CHEZ LES PATIENTS NOUVELLEMENT DÉPISTÉS DE LA LÉPARE DANS 4 PROVINCES ENDÉMIQUES DU BURUNDI
Presenter: Sawadogo Michel

Screen 3, 12:50 - 13:00
MYCOBACTERIUM LEPRAE EXISTENCE IN COASTAL AND AGRICULTURAL ENVIRONMENT OF LEPROSY ENDEMIC AREA IN NORTHERN EAST JAVA, INDONESIA.
Presenter: Ratna Wahyuni

Screen 3, 13:00 - 13:10
THE ROLE OF FREE LIVING AMOEBA AS AN ENVIRONMENTAL HOST FOR MYCOBACTERIUM LEPRAE
Presenter: Dinar Adiastly

Screen 3, 13:10 - 13:20
RISK FACTORS ANALYSIS ON SUBCLINICAL STAGE OF LEPROSY AMONG ELEMENTARY SCHOOL CHILDREN IN LEPROSY ENDEMIC AREA OF EAST JAVA
Presenter: Mr Adam Iswahyudi

Screen 3, 13:20 - 13:30
DEATHS ATTRIBUTED TO LEPROSY IN BRAZIL (2000-2007)
Presenter: Eliane Ignoti

Screen 3, 13:30 - 13:40
MYCOBACTERIUM LEPRAE IN DAILY USED WATER IN ENDEMIC AREA; ITS QUANTIFICATION AND EVALUATION OF THE VIABILITY
Presenter: Masaomi Matsuoka

Screen 3, 13:40 - 13:50
INVESTIGATING THE CONUNDRUM OF LEPROSY TRANSMISSION: A LITERATURE REVIEW FOCUSING ON THE TRANSDERMAL ROUTE
Presenter: Erik Post

Screen 3, 13:50 - 14:00
TRENDS IN LEPROSY RESEARCH: A BIBLIOMETRIC ANALYSIS OF MEDLINE PUBLICATIONS DURING PRE-MDT AND POST-MDT PERIOD
Presenter: Srivivas Govindanarajulu

Prevention of disability

Screen 4, 12:30 - 12:40
PHYSICAL DISABILITY IN PEOPLE AFFECTED BY LEPROSY AFTER TREATMENT COMPLETION
Presenter: Layana Guimarães

Screen 4, 12:40 - 12:50
COMPARISON BETWEEN DIFFERENT METHODS OF MONOFILAMENT TEST IN MULTIBACILLARY LEPROSY.
Presenter: Dr Penvadee Pattanaprichakul

Screen 4, 12:50 - 13:00
STRENGTHENING REFERRAL SYSTEM BY INVOLVING PRIMARY HEALTH CARE PERSONNEL TO PROMOTE REFERRALS FOR QUALITY LEPROSY SERVICES AT LEPROSY REFERRAL CENTRES THROUGH OUTREACH CAMPS: A PILOT INITIATIVE IN 3 TRIBAL DISTRICTS OF MAHARASHTRA & CHATTISGARH
Presenter: Ashutosh Prabhavalkar

Screen 4, 13:00 - 13:10
PHYSICAL DISABILITY AND SOCIAL PARTICIPATION IN PEOPLE AFFECTED BY LEPROSY AFTER MULTIDRUG THERAPY
Presenter: Artur Dosling

Screen 4, 13:10 - 13:20
A POPULATION BASED REGISTRY– A POSSIBLE STRATEGY FOR LEPROSY IN URBAN AREAS?
Presenter: Dr G Pitchaimani

Screen 4, 13:20 - 13:30
ANALYSIS OF DISABLED HANDS AMONG 5627 PEOPLE AFFECTED BY LEPROSY
Presenter: Prof Liangbin Yan
**Detection and Treatment of Reactions**

**Screen 6, 12.30 - 12.40**

**TYPE 1 LEPROSY REVERSAL REACTION TREATED WITH TOPICAL TACROLIMUS AS AN ADJUNCTIVE THERAPY**

**Presenter:** Thaverit Sittiwakin

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**Leprosy and NTDs**

**Screen 6, 13.00 - 13.10**

**PREVALENCE OF INFECTIOUS COMORBIDITIES IN DIAGNOSIS OF PATIENTS WITH LEPROSY**

**Presenter:** Dr Isabela M. B. Goulart

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**Screen 6, 13.10 - 13.20**

**CO-INFECTION OF HANSEN’S DISEASE AND HIV: ANALYSING REPORTS OF AN INTEGRATED COUNSELLING AND TESTING CENTRE (ICTC) FUNCTIONING FROM AN ERSTWHILE LEPROSY REFERRAL HOSPITAL IN DELHI METROPOlis**

**Presenter:** Dr Abraham Selvasekar

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**Screen 6, 13.20 - 13.30**

**IDENTIFICATION OF POTENTIAL ANTIGENS AND BIOMARKERS DETECTING M. LEPRAE EXPOSURE**

**Presenter:** Kidist Bobosha Aboma

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**Screen 6, 13.30 - 13.40**

**EVALUATION AND MONITORING OF HOUSEHOLD CONTACTS OF LEPROSY PATIENTS: CLINICAL EXAMINATION, INTRADERMAL MITSUDA REACTION, SEROLOGY FOR DETECTION OF ANTI-PGL-1 ANTIBODIES AND MULTI-EPITOPES OF RECOMBINANT MYCOBACTERIUM LEPRAE PROTEINS**

**Presenter:** Eliane Silva

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**Screen 6, 13.40 - 14.00**

**CHILD HANSEN’S DISEASE IN VENEZUELA**

**Presenter:** Elsa Rada

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**History of Leprosy**

**Screen 7, 12.30 - 12.40**

**MYTHS ABOUT LEPROSY: RESULTS OF A SURVEY OF PERCEPTIONS ABOUT THE INFECTION**

**Presenter:** Prof Charlotte Roberts

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**Screen 7, 12.40 - 12.50**

**LEPROSY IN ARS HISTORY OF LEPROSY**

**Presenter:** Jose Terencio de las Aguas

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**Screen 7, 12.50 - 13.00**

**LEPROSY IN LIBERIA: A BRIEF HISTORICAL REVIEW OF PREVALENCE AND DISTRIBUTION, WITH A SURVEILLANCE UPDATE**

**Presenter:** Richard Nisbett
Screen 7, 13:00 - 13:10 P-131
ROLE OF THE SANATORIUM OF FONTILLES FROM ITS INAUGURATION IN 1909 UP TO THE USE OF THE FIRST EFFECTIVE DRUG AGAINST LEPROSY (PROMIN, 1945)
Presenter: Fátima Moll Cervera

Screen 7, 13:10 - 13:20 P-132
CONTROL OF LEPROSY IN THE VILLAGES SURROUNDING THE SANATORIUM OF FONTILLES WITH NO EFFECTIVE TREATMENT AVAILABLE
Presenter: Fátima Moll Cervera

Screen 7, 13:20 - 13:30 P-134
ORGANIZATIONAL RELEVANCE THROUGH RESPONSIVENESS TO THE CHANGING NEEDS OF PEOPLE AFFECTED BY LEPROSY - 138 YEARS OF THE LEPROSY MISSION IN INDIA
Presenter: Dr Annamma John

Screen 7, 13:30 - 13:40 P-135
SOME REFLECTIONS CONSIDERING THE PALEOPATHOLOGICAL DIAGNOSIS OF LEPROMATOUS AND TUBERCULOID LEPROSY ON HUMAN SKELETAL REMAINS
Presenter: Vitor Matos

Screen 7, 13:40 - 13:50 P-137
THE JOURNEY OF A MEDIEVAL EPIDEMIC IN BRITAIN
Presenter: Dr Richard DE SOLDENHOFF

Screen 7, 13:50 - 14:00 P-140
MILESTONES IN LEPROSY
Presenter: Mr Michaelsamy Rajenderen

Microbiology

Screen 8, 12:30 - 12:40 P-145
AN ATTEMPT TO CULTIVATE MYCOBACTERIA ISOLATED FROM LEPROSY LESIONS ON MINIMAL NUTRIENT MEDIA
Presenter: Dr Mikhail Yushin

Screen 8, 12:40 - 12:50 P-147
MOLECULAR TESTING FOR DRUG RESISTANCE ON SLIT SKIN SAMPLES OF NEW LEPROSY PATIENTS - A COMMUNITY BASED STUDY FROM ODISHA, INDIA
Presenter: Aparna Srikantam

Screen 8, 12:50 - 13:00 P-148
ANALYSIS OF PERSISTENCE OF MYCOBACTERIUM LEPRAE IN AMBLIOMMA CAJENNENSE AND RHODNIUS PROLIXUS AFTER INFECTION BY ARTIFICIAL FEEDING
Presenter: Flavio Lara

Screen 8, 13:00 - 13:10 P-149
DETERMINATION OF MYCOBACTERIUM LEPRAE VIABILITY USING 16S RNA
Presenter: Ida Maria Dias Baptista

Screen 8, 13:10 - 13:20 P-150
OLD DISEASE NEW INSIGHT: THE DISCOVERY, PHYLOGENY, AND SIGNIFICANCE OF THE SECOND LEPROSY AGENT MYCOBACTERIUM LEPRAMATOSIS
Presenter: Xiang-Yang Han

Screen 8, 13:20 - 13:30 P-151
METABOLIC AND IMMUNOLOGICAL PROFILES OF AIRWAY RESPIRATORY EPITHELIAL CELLS DURING INTERACTIONS WITH MYCOBACTERIUM LEPRAE
Presenter: Rosana Ferreira

Screen 8, 13:30 - 13:40 P-144
SCHWANN CELLS ARE DAMAGED BY MYCOLACTONE PRODUCED BY MYCOBACTERIUM ULCERANS - MECHANISM OF PAINLESSNESS IN BURULI ULCER
Presenter: Junichiro EN

Screen 8, 13:40 - 13:50 P-153
CELL POPULATION IN THE SPECTRUM OF LEPROSY AND REACTIONAL FORMS: EXPRESSION OF M1 AND M2 MACROPHAGES.
Presenter: Ms Luciana Fachin

Screen 8, 13:50 - 14:00 P-155
ANGIOGENESIS AND LYMPHANGIOGENESIS IN THE SPECTRUM OF LEPROSY AND ITS REACTIONAL FORMS
Presenter: Dr Cleverson Soares

Molecular Biology

Screen 9, 12:30 - 12:40 P-033
STUDY ON GENOTYPING OF MYCOBACTERIUM LEPRAE IN GUANGDONG PROVINCE CHINA
Presenter: Dr Ming Li

Screen 9, 12:40 - 12:50 P-034
EVALUATION OF REAL-TIME PCR TARGETING RLEP FOR DETECTION OF M. LEPRAE DNA IN PARAFFIN-EMBEDDED SKIN BIOPSY SPECIMENS FOR EARLY DIAGNOSIS OF LEPROSY
Presenter: Yan Wen

Screen 9, 12:50 - 13:00 P-035
DRUG RESISTANCE STUDY AND GENOTYPING IN M. LEPRAE STRAINS FROM MALI AND BENIN, WEST AFRICA
Presenter: Philippe Busso

Screen 9, 13:00 - 13:10 P-036
THE ROLE OF HLA IN BORDERLINE LEPROSY PATIENTS FROM SÃO PAULO STATE: PRELIMINARY RESULTS
Presenter: Fabiana Santana

Screen 9, 13:10 - 13:20 P-037
EXTRACTION OF MYCOBACTERIUM LEPRAE DNA FROM SKIN SMEAR STAINED BY THE ZIEHL-NEELSEN METHOD FOR AMPLIFICATION OF GENES ASSOCIATED WITH DRUG RESISTANCE IN LEPROSY
Presenter: Patricia S Rosa

Screen 9, 13:20 - 13:30 P-049
SEQUENCE COMPARISON AND QUANTITATIVE EXPRESSION OF GENES INVOLVED IN LIPID AND CARBOHYDRATE METABOLISM IN MYCOBACTERIUM LEPRAE
Presenter: Thomas Gillis

Screen 9, 13:30 - 13:40 P-046
MOLECULAR-BASED RT-PCR ASSAYS FOR DETERMINING MYCOBACTERIUM LEPRAE VIABILITY IN TISSUES OF EXPERIMENTALLY INFECTED MICE
Presenter: Thomas Gillis
AFTERNOON COFFEE BREAK ePOSTERS

15:30 – 16:00

**Molecular Epidemiology**

**Screen 9, 13:40 - 13:50**
**P-499**
MYCOBACTERIUM LEPRAE STRAIN TYPES IN NEPAL
**Presenter:** Deanna Hagge

**Screen 9, 13:50 - 14:00**
**P-498**
LEPROSY IN CEBU, PHILIPPINES: INSIGHTS FROM MOLECULAR EPIDEMIOLOGY APPROACHES ON GEOGRAPHIC DISTRIBUTION, DRUG RESISTANCE AND TRANSMISSION DURING 2002-2010
**Presenter:** Dr Marivic Balagon

**Chemotherapy**

**Screen 10, 12:30 - 12:40**
**P-084**
COMPARISON OF PROFILE OF PATIENTS WHO WERE RESTARTED ON MDT AND THOSE WHO WERE STARTED ON MDT FOR THE FIRST TIME
**Presenter:** Mannam Ebenezer

**Screen 10, 12:40 - 12:50 P-085**
BRAZILIAN CLINICAL TRIAL OF UNIFORM MULTIDRUG THERAPY FOR LEPROSY PATIENTS (U-MDT/CT-BR - THE CORRELATION BETWEEN CLINICAL DISEASE TYPES AND ADVERSE EFFECTS
**Presenter:** Prof. Dr Heitor Gonçalves

**Screen 10, 12:50 - 13:00**
**P-086**
GENETIC POLYMORPHISMS OF NAT2, CYP2E1 AND ADVERSE EFFECTS ON DAPSONE THERAPY IN LEPROSY PATIENTS
**Presenter:** Bruna Gouveia

**Screen 10, 13:00 - 13:10**
**P-087**
EVALUATION OF MULTIBACILLARY PATIENTS ADMINISTERED ALTERNATIVE MULTIDRUG THERAPY
**Presenter:** Anna Maria Sales

**Screen 10, 13:10 - 13:20**
**P-088**
ANTILEPTOTIC ACTIVITY OF SOME PLANTS OF ASTRAKHAN REGION
**Presenter:** Prof Guzel Genatullina

**Screen 10, 13:20 - 13:30**
**P-089**
ANALYTICAL STUDY OF DEFAULTERS IN LEPROSY AT A TERTIARY LEPROSY CENTER IN SOUTH INDIA
**Presenter:** Dr. Sanjana Shivashankar

**Screen 10, 13:30 - 13:40**
**P-090**
PLANNING PROJECT MANAGEMENT IN CLINICAL TRIALS: A BRIEF GUIDE OF ESSENTIALS
**Presenter:** Attyla Drabik

**Screen 10, 13:40 – 13:50**
**P-091**
ASSESSMENT OF COMPLETE BLOOD COUNT PROFILE OF LEPROSY PATIENTS BEFORE MULTIDRUG THERAPY
**Presenter:** Dr Isabela M. B. Goulart

**Epidemiological Surveillance**

**Screen 2, 15:30 - 15:40**
**P-172**
DETECTION OF IMMUNOGLOBULINS G TO DIS-BSA-SPECIFIC SEMI-SYNTHETIC ANTIGEN OF MYCOBACTERIUM LEPRAE IN BLOOD SERA FROM DONORS OF ASTRAKHAN REGION OF RUSSIAN FEDERATION
**Presenter:** Dr Mikhail Yushin

**Screen 2, 15:40 - 15:50**
**P-174**
LEPROSY IN CHILDREN UNDER FIFTEEN YEARS IN BRAZIL, 2011
**Presenter:** Magda levantozi

**Screen 2, 15:50 - 16:00**
**P-175**
LEPROSY IN TAJIKISTAN
**Presenter:** Azizullo Kosimov

**Screen 3, 15:30 - 15:40**
**P-219**
LEPROSY IN CEBU, PHILIPPINES: SEARCH FOR DEMOGRAPHIC, ECONOMIC AND WATER USAGE RISK FACTORS FOR TRANSMISSION
**Presenter:** Dr Marivic Balagon

**Screen 3, 15:40 - 15:50**
**P-224**
THE PRESENCE OF M. LEPRAE IN ENVIRONMENT AND RELATION WITH WEATHER VARIABLES: SYSTEMATIC REVIEW
**Presenter:** Eliane Ignotti

**Prevention of Disability**

**Screen 4, 15:30 - 15:40**
**P-239**
EARLY DETECTION OF SENSORY NERVE FUNCTION IMPAIRMENTS IN THE FIELD
**Presenter:** Dr Annamma John

**Screen 4, 15:40 - 15:50**
**P-241**
A SURVEY ON DISABILITY, ECONOMIC, AND SOCIAL PROBLEM OF LEPROSY AFFECTED PERSONS IN LOW PREVALENT AREA: KANCHANABURI PROVINCE, THAILAND
**Presenter:** Siramas Rodchan

**Screen 4, 15:50 - 16:00**
**P-231**
HIGH DISABILITY RATE AMONG NEW LEPROSY PATIENTS IN NIGERIA: A 10 YEARS REVIEW STUDY (2001 TO 2011) IN OSUN STATE, NIGERIA
**Presenter:** Osman El Tayeb

**Leprosy Control - Urban and Special Populations**

**Screen 5, 15:30 - 15:40**
**P-052**
LITERATURE REVIEW - LEPROSY CONTROL IN URBAN SETTINGS
**Presenter:** Dr Venkata Ranganadha Rao Pemmaraju

**Screen 5, 15:40 - 15:50**
**P-056**
MEDICAL CAMPS AS A NEW CASE DETECTION STRATEGY IN AN URBAN METROPOLIS IN INDIA
**Presenter:** Dr. Abraham Selvasakar
Screen 5, 15:50 - 16:00  P-057
SCREENING OF POPULATIONS IN NIGHT SHELTERS IN NATIONAL CAPITAL TERRITORY OF NEW DELHI – AN INNOVATIVE NEW CASE DETECTION STRATEGY!
Presenter: Dr. Abraham Selvasakar

New Diagnostic Tools
Screen 6, 15:30 - 15:40  P-282
DETECTION OF M. LEPRAE SPECIFIC PSR TESTING OF LEPROSY PATIENTS AND HOUSEHOLDS CONTACTS
Presenter: Prof Liudmila Saroyants
Screen 6, 15:40 - 15:50  P-283
EXPERIENCE ON GENOTYPING FOR DRUG RESISTANCE OF MYCOBACTERIUM LEPRAE IN BRAZIL
Presenter: Philip Suffys
Screen 6, 15:50 - 16:00  P-284
ROLE OF CYTOLOGY IN STUDY OF LEPROSY.
Presenter: Vithal Jadhav

Microbiology
Screen 8, 15:30 - 15:40  P-154
SINGLE PLAQUE LESION SUSPECTED OF LEPROSY: DO MOLECULAR ASSAYS AID DIAGNOSIS?
Presenter: Mrs AM Sales
Screen 8, 15:40 - 15:50  P-156
DERMATOFIBROMA ORIGINATING IN CUTANEOUS LESIONS OF LEPROSY: REPORT OF 18 CASES
Presenter: Dr Cleveron Soares
Screen 8, 15:50 - 16:00  P-157
DETERMINATION OF TRANSMISSION PATTERNS OF CIRCULATING MYCOBACTERIUM LEPRAE STRAINS AMONG LEPROSY PATIENTS IN AREAS OF HIGH LEPROSY PREVALENCE IN INDIA USING VNTR AND SNP TYPING
Presenter: Malika Lavania

Training in Leprosy
Screen 9, 15:30 - 15:40  P-068
TRAINING IN LEPROSY AT THE SANATORIUM OF FONTILLES (SPAIN)
Presenter: Fátima Moli Cervera
Screen 9, 15:40 - 15:50  P-070
LOW PREVALENCE AREA SOCIETY, INVESTIGATION ON LEPROSY COGNITION OF MEDICAL STUDENTS AND DOCTORS OF THE DEPARTMENT OF DERMATOLOGY
Presenter: Mr Yanjun Wang
Screen 9, 15:50 - 16:00  P-071
HOW LARGE IS THE KNOWLEDGE AND ATTITUDE DEFICIT ON LEPROSY: A SURVEY OF FINAL YEAR MEDICAL STUDENTS AND MEDICAL DOCTORS IN SOUTHEASTERN NIGERIA
Presenter: Joseph Chukwu

Chemotherapy – Newer Drugs
Screen 10, 15:30 - 15:40  P-459
ONE YEAR EVALUATION OF PREVENTIVE TREATMENT IN SUBCLINICAL STAGE OF LEPROSY
Presenter: Indropoagusni
Screen 10, 15:40 - 15:50  P-460
LEPROSY AFTER TREATMENT WITH INFLIXIMAB AND ADALIMUMAB
Presenter: Marcos Floriano
Screen 10, 15:50 - 16:00  P-458
EVALUATION OF NERVE FUNCTION IMPAIRMENT (NFI) IN MULTIBACILLARY (MB) LEPROSY PATIENTS ON MULTIDRUG THERAPY (MDT-MB) ALONG WITH OR WITHOUT PREDNISOLONE.
Presenter: Dr H.K Kar
Tuesday 17 September 2013

Abstracts

HIDDEN

CHALLENGES
PL – 001
Speaker: Dr Sumana Barua


Leprosy, nearly three decades ago, precisely in 1985, was a disease prevalent in large numbers in more than 122 countries, whereas in 2013, only 16 countries report more than 1 000 cases annually. WHO Global Leprosy Programme (GLP) annual statistics for the year 2012, show detection of 232 857 new cases as reported from members states. 14 409 new cases had visible deformities or grade 2 disabilities (G 2 D), 95% of leprosy is from 16 top endemic countries.

Early detection of cases, timely enough to register them for multidrug therapy (MDT) by the national leprosy programme remains the key strategy for leprosy control. WHO GLP brought out two global leprosy strategies over the past 10 years in continuum to previous ones essentially to reduce the disease burden due to leprosy. The current one is “Enhanced Global Leprosy Strategy for Further Reducing Disease Burden due to Leprosy (2011-2015)”. The strategies were developed in consultation with partner organizations and member states and its principles and strategies were imbibed in their respective national programme guidelines.

The ‘enhanced global strategy’ mentions a few elements which needs to be enhanced during the implementation period between 2011-2015 like, sustaining political commitment, strengthening referral services and introducing innovative approaches to for early case detection and so on. Sustaining the political commitment was given due importance by GLP and organized an International leprosy summit in July 2013, which brought out a landmark declaration. The remaining challenges in programme implementation and other key strategic areas were deliberated in the summit to improve the leprosy programme implementation in an integrated approach.

PL – 002
Speaker: Dr Julie Jacobson

LEPROSY WITHIN THE CONTEXT OF NEGLECTED TROPICAL DISEASES

Leprosy is an ancient disease that has been experienced around the world in diverse settings and has commonly been associated with poverty. In this session we will look at Leprosy and its broader association with the diseases of poverty, the neglected tropical diseases (NTDs). First we will hear about the global context that the leprosy program is now happening within following the London Declaration on NTDs and the opportunity this presents. This will be followed by a series of diverse talks on the leprosy from the experience of the individual through to the pathogen’s interaction with other infections. We will then close with a discussion of leprosy within the broader context of the NTDs and how to use this to ensure that the elimination of leprosy and the care or those afflicted will be strengthened moving ahead.

PL-003
Speaker: Dr Joseph Kawuma

THE PLACE OF LEPROSY IN PRESENT DAY NATIONAL HEALTH SYSTEMS

H. J. S. Kawuma 1,2

1MEDICAL ADVISOR, GERMAN LEPROSY AND TB RELIEF ASSOCIATION, KAMPALA, Uganda

Introduction: According to serial WHO recommendations, leprosy services should be integrated into the general public health services. That notwithstanding many countries in Africa developed National Leprosy Control / Elimination Programmes in order to maximize the benefit of the WHO recommended MDT and at the same time accelerate the change from treatment in isolation camps and leprosaria to ambulatory community based care. The Elimination strategy in the early 2000 led to a dramatic decrease in numbers of patients registered for treatment but in many settings did not significantly affect the new case detection rate at the same rate. From a combination of misunderstanding of the elimination goal and the apparent reduction in the leprosy disease burden, countries are now challenged with having to sustain leprosy care activities for an indefinite period of time since leprosy cannot yet be considered an eradicable disease. At the same time a number of new health challenges have emerged even in the developing world including HIV AIDS, the upsurge of TB and the increasing incidence of non-communicable diseases. Integrated approaches where leprosy control activities are carried out by multipurpose settings by general health workers already exist but need to be improved. The health service managers of different countries are challenged with the need to develop the most cost-effective strategies to deal with the remaining leprosy burden. This presentation reviews the experiences gained thus far and discusses options for the way forward.

Methods: The documented information on leprosy related interventions within the health system of Uganda and of 10 other African countries with different levels of leprosy endemicity is reviewed.

Results: There is no single approach that fits all countries but nearly all are working in integrated systems. The merits and challenges related to the various approaches adapted by different countries will be discussed and compared.

Conclusion: So long as leprosy cannot yet be considered an eradicable disease, all health systems need to commit financial and other resources to a surveillance system, preferably one that is integrated into the Primary Health Care (PHC) services including leprosy as an integral entity. The easiest information to collect using routine Health Information Management Systems seems to be on new cases and their characteristics. Provision of treatment and other care can be organized within the PHC services but needs to linked to an efficient referral system. Such a referral system, among others, engages the services of expert teams or individuals dealing with leprosy and other neglected tropical diseases that share control strategies with leprosy. Similarly, the leprosy services can be utilized to cover other conditions. Dedicated centers or departments will continue to be required to provide tertiary referral services, training and to participate in research initiatives that must continue for purposes of providing operational and basic solutions to the knowledge gaps in the leprosy field. If the disease burden continues to diminish, the specialist services may be only conveniently located at regional level and taking advantage of new advances in communication. All meaningful interventions should be planned and implemented with the involvement of leprosy affected persons.
Programme
Tuesday 17 September 2013

SYMPOSIUM LEADERS

L-001
Presentation Time: Tuesday 17/09/2013 at 11:00 – 12:30
Symposium Session: Best Clinical Practices
Presenter: Dr. Maria Leide

BEST PRACTICES: FROM A BROAD APPROACH TO FIELD APPLICATION ON LEPROSY PATIENT CARE

Maria Leide W. Oliveira, Nurimar C. Fernandes
Medical School /Federal University of Rio de Janeiro

It appears that the approach to “best practices” (BP) is a way of perceiving the world, under one complex perspective of universal ethics. Best practices are linked to sustainability and ecology, as an essence of human actions to conduct management practices. In this view (BP) could be linked to accountability in different areas. The Centre for International Research and Advisory Networks (CIRAN) and Management of Social Transformations Programme (MUST) chose 27 “best practices” (7 from health area, no one in leprosy) with the following criteria: they are innovative; (ii) they make a difference; (iii) they have a sustainable effect; (iv) they have the potential for replication.

Applied in a “Good Clinical Research Practice” (GCP) is a process that incorporates established ethical and scientific quality standards for the design, conduct, recording and reporting of clinical research involving the participation of human subjects. Compliance with GCP principles, provides public assurance that the rights, safety, and well-being of research. Health policy decisions, including high level prioritization decisions, formulation of health benefits packages or deployment of high cost technology in health systems. Health Technology Assessment (HTA) plays an essential role in modern health care, supporting evidence-based decisions in health policy and practice. Ministry of Health from many countries has been adopting this methodology to formulate their public health policies.

It is well documented by systematic review that leprosy presents many gaps in all different applications of (BP) concepts, despite some worldwide initiatives. This is clearly seen in the results of the last two systematic reviews of current scientific evidence on leprosy, undertaken by ILEP Technical Commission (2002 and 2009). A very few recommendation of both became visible in implemented research, as can be seen in research trials portals (Figure1). Thus, best clinical practices (BCP) in a specific field of leprosy should follow: 1) Technical or consensual guidelines based on reliable existing knowledge. The planning and organization of care could be adequate for specific context to take effect, but the principle must use a good quality of registers that it will also allow a reliable analysis, besides a good quality of care.

2) Standardised protocols related to the previous knowledge weak on different leprosy issues, in order to measure and compare outcomes and so generate a new and consistent knowledge, and

3) Multicentric trials on operational research linked to basic research centers in order to provide those priority gaps on leprosy knowledge.

No least important is professional training to increase the adherence to the clinical evidence-based studies, and humanization principles of care, specially the doctors. Their involvement in BCP is strategically important to avoid a practice linked not only to meet the urgent needs of the public or private health care systems. Nowadays there are multiple and accessible virtual information “called” evidence-based studies that could be utilized by health professionals anywhere. One helpful possibility would be a management of a virtual online network with the purpose of connecting all reliable leprosy sources and ongoing BCP, promoting information exchanges between research centers, reference units and professionals in the field.

L-002
Presentation Time: Tuesday 17/09/2013 at 11:00 – 12:30
Symposium Session: Training in Leprosy
Presenter: Dr. Chris Schmolzer

BUILDING CAPACITY AND COMPETENCE FOR LEPROSY WITHIN INTEGRATED PROGRAMMES

Dr. Chris Schmolzer

Introduction: The objective of this paper is to contribute to building capacity and competence for leprosy within integrated programmes.

Background: With decreasing prevalence and incidence worldwide, capacity and competence building in leprosy is a challenge. Leprosy control can only be sustained in integrated programmes with reliable partners, relevant stakeholders, fitting into the national/sub-national health care structures. All stakeholders are in need of building capacity and competence. The roles of different levels of health care workers in leprosy control must be clearly defined and addressed accordingly.

Strategies:
1. Development of national conceptual framework for leprosy control
2. Community mobilization in hyper-endemic areas
3. Awareness programmes for primary health care
4. Linking leprosy control with basic dermatology
5. Needs-based, task-oriented training
6. Reliable expertise at national/regional resource centres
7. Continued political commitment

Recommendations
1. Conduct situation analysis and training needs assessment
2. Review national guidelines for leprosy control
3. Net-work with capacity building in basic dermatology
4. Strengthen National Resource Centres for Leprosy

Conclusion: Adequate capacity and competence building in leprosy now is essential for the future of leprosy control.

L-003
Presentation Time: Tuesday 17/09/2013 at 14:00 – 15:30
Symposium Session: Information, Education, Communication
Presenter: Dr. June Nash

From information overload to effective communication through better practice

Objective: to discuss the present state and practice of IEC and look towards new initiatives

Summary: The presentation will consider the present state of IEC looking at recently published papers. It will then consider ways to improve our practice including

• Working with communities and individuals
• Planning programmes and approaches
• Participatory methods
• Improved evaluation and measurement of efficacy

And finally consider the opportunities that social media may present for the future particularly in urban settings.

L-004
Presentation Time: Tuesday 17/09/2013 at 14:00 – 15:30
Symposium Session: Chemoprophylaxis and Contacts
Presenter: Dr. Chris Schmolzer

POSSIBLE APPLICATIONS OF CHEMOPROPHYLAXIS IN LEPROSY CONTROL

Prof. Jan Hendrik Richardus, MD, PhD, Department of Public Health Erasmus MC, University Medical Center Rotterdam, Rotterdam, the Netherlands

Rifampicin is a strongly bactericidal antibiotic against M. leprae and a single dose can prevent leprosy disease in contacts of leprosy patients. Trial evidence shows a more than 50% reduction in leprosy among contacts of newly diagnosed patients within two years after receiving a single dose of rifampicin (SDR) as prophylactic treatment. SDR is a promising preventive intervention for contacts of leprosy patients, but more information is necessary regarding its acceptability and feasibility in multiple field settings. Because no appropriate and reliable test is yet available to determine infection with M. leprae before clinical signs of the disease develop, SDR can only be provided to people with a perceived high risk based on epidemiological risk assessment without knowing whether they are really infected. Proximity to and blood relationship with an index patient, age of the contact, and bacterial load of the index patient are known risk factors for leprosy in contacts, yet SDR is most effective in contact groups with relatively low perceived a priori risks because it is much more effective in contact groups of PB index patients, in contacts who are not living in the same household or have no close blood relationship to the index patient. Infected contacts in these groups have probably had less exposure and therefore lower bacterial loads than those who are closer to an index patient, rendering treatment with SDR more successful. These findings challenge the design of routine chemoprophylaxis interventions, because distant contacts are less approachable due to leprosy stigma related factors. It is important to establish which contact groups benefit most from SDR and how they can be reached best.

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THE CHALLENGES OF ERYTHEMA NODOSUM LEPROSUM

Diana NJ Lockwood, London School of Hygiene & Tropical Medicine

Erythema Nodosum Leprosum (ENL) continues to be a major challenge for leprosy services. This condition is still poorly understood pathologically and patients with ENL are challenging to manage clinically. I shall review the data on pathology of ENL; the continuing lack of evidence for treatments and the opportunities afforded by the establishment of a new global network to study ENL.

The immuno-pathology of ENL is complex and there is evidence that immune complexes, B cell activation, T cell and neutrophils all have some role in initiating and maintaining inflammatory episodes (1). Having a high BI is a consistent risk factor for ENL and ENL often only subsides when mycobacterial antigen loads decrease in the skin.

Patients require long treatment courses with immuno-suppressive drugs to control ENL. Measuring severity of ENL and monitoring severity and control of ENL is complex and patients are best classified into having acute single ENL, acute recurrent or chronic ENL (2). There is an absence of clinical trials on ENL (Cochrane and other reviews) (3). Thalidomide is an effective drug but it is not available in many leprosy endemic countries. Data on adverse effects associated with this condition is still poorly understood pathologically and patients with ENL are challenging to manage clinically.

The Erythema Nodosum Leprosum International STudy Group (ENLIST) is a global network to centre pathological and interventional studies on ENL.

Presentations

L-005
18th International Leprosy Congress • Hidden Challenges
Presentation Time: Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session: ENL Reaction 1
Presenter: Prof Diana Lockwood

THE CHALLENGES OF ERYTHEMA NODOSUM LEPROSUM


L-006
Presentation Time: Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session: Prevention of Disability
Presenter: Dr. Hugh Cross

THE DEVELOPMENT OF GUIDELINES TO CLARIFY AND SIMPLIFY THE WHO THREE GRADE DISABILITY GRADING SYSTEM.

Hugh Cross PhD, Programme Director (Asia), American Leprosy Missions

Introduction: Through a survey conducted by Professor Cairns Smith it became apparent that the issue of WHO disability assessment and grading required attention. Professor Smith elicited responses from 332 people, 73% of whom reported that they had more than 5 years experience in leprosy while 91% reported that they had been trained in leprosy and that the training had included disability assessment. Form his analysis Professor Smith drew the following conclusions:

• there was considerable over-reporting of grade 2 disability
• a common reason for over-reporting was that visible changes that were not exclusive to eyes, hands or feet were included in the grading
• while 72% of respondents reported that their patient form included the EHF score, only 41% gave the correct EHF score (78% were within 1 point of the correct score)
• specific recommendations on skin cracks, healed ulcers, muscle weakness and eye changes would be helpful
• simple, clear guidance on disability assessment could improve the consistency in grading. The ILEP technical Commission (ITC) discussed the outcome of the survey and agreed that the implications of the findings were salutary. The ITC also agreed that a concerted effort was required, first to clarify those aspects of assessment that were currently unclear; and then to formulate a simple guide which can be used by health workers to assist them in the assessment procedure.

The ITC, with the knowledge of Dr Sumana Barua, Team Leader at the Global Leprosy Programme) agreed that such an exercise should be undertaken, not to change the essential criteria for WHO disability grading, but to develop a consensus on definitions of the characteristics that decide precisely how an eye, hand or foot should be graded.

Method: A Delphi exercise was undertaken to establish an expert consensus on how to clarify and standardize the WHO three grade disability grading system. A Delphi panel was recruited which comprised 13 individuals. Recognised as general experts in the prevention of disability in leprosy, each panel member also had extensive experience of working with health workers who were responsible for the assessment and grading of disability and were therefore aware of issues with the system. On completion of the task of drafting the guidelines further advice and comment were sought from selected ophthalmologists for the purpose of further refining the guidelines on the assessment of the eye.

Results: The Delphi panel pursued a three stage process through which a consensus was developed on clear definitions of the characteristics that decide precisely how an eye, hand or foot should be graded. From that consensus guidelines can be used by health workers who are required to assess and grade disabilities presented by people with leprosy. Reflecting the consensus of a group of acknowledged experts the new guidelines can be applied with confidence.

References
IS COUNTING LESIONS ENOUGH: THE SIGNIFICANCE OF SLIT SKIN SMEARS AND BIOPSY HISTOPATHOLOGY IN THE CLINICAL DIAGNOSIS, TREATMENT AND CLASSIFICATION OF LEPROSY PATIENTS

D. A. Hagege 1, 2, P. Thapa 1, I. R. Shrestha 1, K. Neupane 1, I. B. Napit 1, L. Rajan 1, J. Ponnayya 2, M. Shah 1

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Introduction: Diagnosis of leprosy primarily relies upon the detection of leprosy lesions, peripheral neuropathy or bacterial detection. Within endemic areas, the option to perform lab related analyses such as slit skin smear and skin biopsy histology may be limited. In addition, research into immunologically relevant issues such as diagnostics development, neuropathology and reactions rely on accurate diagnostic reporting for results interpretation. We wanted to investigate if the presence or absence of these lab tests impacts accuracy in clinical diagnosis, treatment and Ridley-Jopling classification of patients.

Methods: In order to evaluate the effective contribution of slit skin smears and skin biopsy histopathology in leprosy diagnosis, patient medical charts from 2000-2006 were assessed. Clinician diagnosis following initial physical exam was compared to 1) diagnosis assigned after slit skin smear results became available and 2) comprehensive diagnosis after the clinician had access to both slit skin smears and skin biopsy histopathology reports.

Results: Physical exam of 625 cases resulted in 426 MB (68%) and 199 PB (32%) diagnoses. Clinician consideration of slit skin smear results shifted those diagnoses by 32 cases (5.1%) from PB to MB. Comprehensive diagnosis inclusive of physical exam alongside slit skin smear and biopsy histopathology results shifted diagnoses as follows: 49 PB to MB (7.8%), 63 PB to not leprosy (10.1%), 20 MB to not leprosy (3.2%), 3 PB to resolving leprosy (0.5%), 27 MB to resolving leprosis (4.3%) and 8 relapse to not relapse (1.3%). Leprosy reactions (145) were often complementarily detected between clinical (85.5%) and histopathological (39.6%) assessments. While 61.4% of reactions were detected by physical exam alone, a separate 14.5% of reactions were indicated by histopathology alone. Physical exam assignment for Ridley-Jopling classification correlated with histopathological assignment as follows: tuberculoid, TT (24%); borderline tuberculoid, BT (53%); borderline lepromatous, BL (46%) and lepromatous, LL (8%).

Conclusion: When clinicians had access to both slit skin smears and skin biopsy histopathology results, 27.3% of patients received different diagnoses altering treatment: roughly 8% of cases required more treatment (PB to MB) and 19% of cases did not require MDT at all (13.4% not leprosy, 4.9% resolving leprosy and 1.3% relapse). Clinician access to only slit skin smear results increased diagnostic accuracy by 5% (PB misdiagnosed as PB). Ridley-Jopling classified LL patients were most commonly recognized by clinicians for clinic-histopathological correlation (80%); however, physical exam correlation for other forms was much less. PB/MB diagnosis by lesion count may be the only option for field clinicians lacking access to lab services; however, whenever possible, clinicians, hospitals and specialized leprosy services should utilize minimally slit skin smear and optimally comprehensive diagnosis for provision of best clinical care. If 27% of patients can be misdiagnosed when lab results are unavailable, not only would those individual patients potentially receive wrong treatment; but case reporting and research findings would be significantly obfuscated, making the eradication of the causes and effects of leprosy more difficult to achieve.
Results: The initiative which was initiated by the TLM hospital, Delhi along with the community based project was able to identify motivated self-help groups to associate themselves in reducing impairments among patients in their own community. Of the 10 patients who were regularly attending the self-care sessions 5 persons were healed of their ulcers, 25 persons were assessed and protective footwear were provided, 3 patients were identified and motivated for reconstructive surgery.

Conclusion: The TRACK method will be an effective tool to teach self care for patients living with impairments. The method will help the patient understand and find their own effective way of overcoming the challenges faced due to their impairments. This method will reduce the patient's dependence on health professionals for treatment but will be able to understand that simple lifestyle modifications will prevent new impairments from recurring.

O-004
Presentation Time: Tuesday 17/09/2013 at 11:00 – 12:30
Symposium Session: Best Clinical Practice
Presenter: Mr Karthikeyan Govindasamy

SHORT EXTENSION OUTRIGGER SPLINT TO RELEASE PROXIMAL INTERPHALANGEAL (PIP) JOINT CONTRACTURES IN CLAWED FINGERS IN LEPROSY

G. Karthikeyan 1, 2, D. Premal 1, G. Marivannan 1, P. S. Rao 1
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Introduction: Claw fingers are most common primary impairment in leprosy, when neglected it can lead to PIP joint contractures, ulcers and absorption. PIP joint contracture may originate from skin, capsule and tendon. Muscle balance operations in claw fingers fail often due to contracture. This places the emphasis on the importance of release of all the contractures before surgery. A cylindrical splint (CS) and sophisticated thermoplastic splints has been used to correct PIP joint contractures and rate of incidence of blisters were the outcome measures.

Methods: The comparative trial was carried out during November 2011 to August 2012 at The Leprosy Mission Hospital, Naini a large referral centre for reconstructive surgery in leprosy. The SEO and CS were randomly allocated in two different groups. The SEO was applied 4-6 sessions over a day for 20 minutes. The CS was applied in the evening and left overnight and removed in the morning. The stretching exercise and massage was common for both the groups. The time taken to release contractures and rate of incidence of blisters were the outcome measures.

Methods: The comparative trial was carried out during November 2011 to August 2012 at The Leprosy Mission Hospital, Naini a large referral centre for reconstructive surgery in leprosy. The SEO and CS were randomly allocated in two different groups. The SEO was applied 4-6 sessions in a day for 20 minutes. The CS was applied in the evening and left overnight and removed in the morning. The stretching exercise and massage was common for both the groups. The time taken to release contractures and rate of incidence of blisters were the outcome measures.

Results: Totally 47 fingers of a 33 patients included in the study, 23 for SEO and 24 for CS. The mean(SD) time taken (in days) to release contracture were 10.5 (5) and 15.4 (10), in SEO and CS, respectively and the difference was statistically significant (p=0.06). The risk of blisters was 2 times less in SEO as compared to CS and difference was statistically significant (p=0.0173).

Conclusion: The aluminium SEO is simple to use and reduces significantly the treatment period and risk of blisters in PIP joint contracture release in clawed fingers.

O-005
Presentation Time: Tuesday 17/09/2013 at 11:00 – 12:30
Symposium Session: Best Clinical Practice
Presenter: Dr Valentin Naumov

METABOLIC DISORDERS IN SUBSIDED CASES OF MULTIBACILLARY TYPES OF LEPROSY

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Introduction: It is known, that oxygen species play a significant role in inflammation processes and damage of visceral organs tissues in leprosy. It is also known, that protease-antiprotease imbalance plays a significant role in tissue injury. Chronic hepatitis is one of the basic consequences of long and many type chemotherapy. Aim: To investigate oxidative stress indices and antiproteases level in subsidised cases of multibacillary types of leprosy.

Methods: Fifty multibacillary leprosy patients with subsided leprosy after long duration of antibacterial multidrug therapy (MDT) were studied. Chronic hepatitis was observed in 14 from these patients. Lipid peroxidation products (LPO) were determined in heptane-isopropanol extracts of blood plasma by ultraviolet spectrophotometry method. Malondialdehyde (MDA) levels were also investigated. Concentration of α-1-antitrypsin (α1AT), α-1-acid glycoprotein (α1GP), α-2-macroglobulin (α2MG) and haptoglobin (HP) were determined in blood serum by immunoturbidimetric method. We have compared the significance in the mean ± standard deviation values of LPO, MDA and the levels of α1AT, α1GP, α2MG, HP using one way analysis of variance between leprosy patients with chronic hepatitis and other patients. The results were significant at P<0.05.

Results: The levels of LPO and MDA increased significantly in leprosy patients with chronic hepatitis in comparison with other patients (P<0.01). It means presence of high free radicals activity in these patients. Concentrations of α1AT, α1GP, α2MG, and HP were also significantly elevated in these patients (P<0.05). Connection between degree of hepatitis activity and increase of antiproteases, LPO and MDA level is revealed.

Conclusion: High levels of LPO, MDA, α1AT, α1GP, α2MG, HP are of great diagnostic importance at subsidised leprosy patients with chronic hepatitis and reflect a degree of oxidative stress and chronic hepatitis activity. It serves as a criterion for application suitable anti-oxidant therapy for these patients to prevent liver tissue injury.
ROLES OF LAY COUNSELORS IN REDUCING SELF STIGMA RELATED LEPROSY IN THE SARI STIGMA ASSESSMENT REDUCTION OF IMPACT (SARI) PROJECT IN CIREBON, INDONESIA

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1Central of Disabilities Studies, Jakarta, Indonesia, 2Faculty of Earth and Life Science, University of Amsterdam, Amsterdam, Netherlands

Introduction: Cirebon: a district in West Java, Indonesia still concerns on Leprosy. Medical treatments through community health officers have been worked well to reduce the number of persons who have leprosy. But Health Department of West Java showed 310 new cases in year 2012. It is still a significant number even in year 2000 Indonesia has achieved prevalence rate below 1. However in real life, persons affected by leprosy in Cirebon are not facing medical problems that contributes to their different behaviour that make them labeled themselves as they experience the reaction of other people that made them vulnerable to internalising negative attitude and developing self-stigma. But particularly, either persons who have been cured or are having medication still faced social problems due to stigmatisation. Self-stigma plays in self area that make them are not involved in social activities. They feel self-stigma in the form guilty and shame coming from ignorance and fear due to lack of information and understanding on leprosy. A success story of counseling facilitated by lay counselor affected by leprosy, shared by S as a lay counselor and J as a client. J stopped taking medicine and he let himself with the disease and facing barriers to medical and social participation. J was afraid since after he took medicine, his urine color turned to red, and he knew he has blood in his urine. Moreover, his family spontaneously gave negative reaction labeling him that made him feeling guilty and shame of his family. When S came to his house and did 5 sessions of counseling. J understood and he could reduce his self-stigma by building knowledge on leprosy and having information on the side-effect of the medicine that he had.

Conclusion: Persons affected by leprosy depend with the medication, even they have been cured, sometime they still need medical treatments. Lack of information and poor knowledge on leprosy and its effects to the body and environment are the main sources occurring self-stigma. Counseling is a therapy conversation could meet the needs of persons who still have a problem caused by self-stigma. With social participation of lay counselors who are affected persons, their experience add values in terms of developing knowledge toward confidence to reduce self-stigma.

Comparison of the Quality of Life of Leprosy Affected and Those with Other Stigmatised Diseases

P. Gangadharan 1,2, M. Erreuner 3, J. Richard 1
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Introduction: Leprosy has always been considered as a stigmatizing disease. Other diseases which also carry a stigma are those with Human immunodeficiency Virus (HIV) and Tuberculosis (TB). The present study aims to determine the quality of life (QoL) of leprosy affected compared with the patients with diseases like HIV and TB.

Methods: The Schieffelin Institute of Health-Research and Leprosy Centre (SIHRLC), Kargiri provides care for persons especially leprosy affected in four blocks of Vellore-Katpadi, KV Kuppannai, Gudiyatham and Pernambet. This study was a cross sectional study done on all Leprosy, Tuberculosis and HIV affected individuals from 30 panchayats which were selected to fit the criteria of where there is no access to health care facilities, high prevalence of people with disease and disability. All the leprosy, TB and HIV affected individuals were visited at their homes by social workers and informed consent was obtained. The WHO Quality of Life questionnaire was administered. This questionnaire explores the following four domains: physical health; psychological well-being; social relationships and environment. The socioeconomic status of each subject’s household was also assessed using comprising of 22 questions and dividing the score into six categories. The impact of leprosy, TB & HIV on the quality of life is compared to see if there is any difference in the quality of life among these three stigmatizing diseases.

Results: There were 264 leprosy affected who were interviewed, of which 82 had Grade 2 Disability (G2D) and 182 were 30 patients with Tuberculosis and HIV. In the physical domain, the mean quality of life score for the leprosy affected was 10.84 while for the TB/ HIV group the mean score was 12.27 and this difference was statistically significant (p<0.000). There was no significant difference in the mean scores between the two groups in the psychological and social domains. Those who were leprosy had a lower mean score in the environmental domain, mean score 11.36 as compared to the TB/HIV group where the mean score was 11.93 and this was also statistically significant (p<0.000). When leprosy with G2D was compared with the TB/HIV group the mean quality of life scores was lower in the leprosy affected group in all four domains. In the physical domain the mean score for leprosy with G2D was 9.33, while for HIV/TB it was 12.27. This difference was statistically significant, (p<0.000). In the psychological domain also, the Leprosy with G2D had a mean score of 8.32, whereas for HIV/TB it was 11.83. This difference was statistically significant (p<0.000).

Conclusion: Leprosy has a major impact on the lives of many persons affected by leprosy. All types of stigma were reported. Interventions such as being tested in the SARI Project are needed to mitigate the impact and tackle stigma at its roots.
of 10.18 while mean score of TB/HIV was 12.00 which again was significant. (p=0.000). In the social domain, the mean score for Leprosy with G2D was 10.66, while it was 12.31 for the TB/HIV group. This difference was significant (p=0.000). In the environmental domain the mean score for Leprosy with G2D was 10.34 while it was 11.93 for the TB/HIV group. This also was significant (p=0.000).

Conclusion: This study shows that even among stigmatizing diseases, Leprosy affected especially those with visible disabilities have a poorer quality of life.

G-010
Presentation Time: Tuesday 17/09/2013 at 11:00 – 12:30
Symposium Session: Stigma
Presenter: Nyom Kraipui

COMPARING THE ATTITUDE AND PERCEPTION OF COMMUNITY MEMBERS REGARDING LEPROSY AND TUBERCULOSIS RELATED STIGMA

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Introduction: It is gradually recognized by health professionals at all levels about the impact of stigma on case detection and treatment of various health conditions among which are leprosy and tuberculosis. These diseases are common in terms of being identified as chronic disease which prone to stigmatization. Many attempts have been made to reduce stigma attached to leprosy and tuberculosis. However, it is unclear whether stigma attached to leprosy and tuberculosis actually decreased. Stigma is still present. Leprosy-affected persons were stigmatized by health providers and their neighbors. Some leprosy patients were shunned and refused treatment of their ulcers by nurse aids, resulted in delay in diagnosis and poor compliance to treatment in many of them. Tuberculosis patients perceived tuberculosis as a dreadful, disgusting disease of death. They responded to this perception by denying the truth and by isolating themselves. The aim of this study was to assess the perception of community members towards stigma related to leprosy and tuberculosis in order to verify and compare the existence of stigma towards these two diseases in community, and to provide baseline data for those who are interested in launching de-stigmatizing interventions.

Methods: This study was done in four sub-districts of Chaiyaphum province. Community members were interviewed using Exploratory Model Interview Catalogue (EMIC) stigma scale. Frequency was used to describe the characteristics of study subjects and to describe the attitude and perception of community members on particular statement. A Test was applied to compare between the mean EMIC scores of community members regarding leprosy and the mean EMIC scores of the same group regarding tuberculosis. A P value of <0.05 was considered indicative of a statistically significant difference or association.

Results: It was found that community members had negative attitudes towards both leprosy and tuberculosis. They perceived that people affected by leprosy and tuberculosis had been stigmatized by community. However, it was found that community member had more negative attitude and more perception of community stigma in leprosy than in tuberculosis particularly in terms of social interaction, and marriage and job opportunity.

Conclusion: The stigma against leprosy and tuberculosis may result in reduced quality of life of those affected and may reduce their access to health care services. De-stigmatizing interventions taking local attitude and perception into consideration have been initiated by the authors.

G-012
Presentation Time: Tuesday 17/09/2013 at 11:00 – 12:30
Symposium Session: Molecular Biology 1
Presenter: Ligia Kerr

MYCOBACTERIUM LEPRAE GENOTYPING IN A HIGHLY ENDEMIC AREA IN BRAZIL: AN INTRAPATIENT COMPARISON BY VNTR TYPING

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Introduction: Nasal carriage of Mycobacterium leprae has been shown in leprosy patients but high bacterial loads are more frequently found in skin lesions. Abladed skin and nasal mucosa are suggested as routes of leprosy transmission in humans. The bacilli may present genetic variation after several generations in the body. The identification of clonal variant distribution in different infected sites may imply that subtle genotypic differences could provide adaptive advantage or may be a reflection of neutral evolution. From an epidemiological point of view and to ensure precise tracking of recent transmission in molecular epidemiology programs, it is essential to differentiate cases connected with more than one strain or clonal variant or cases due to the genetic shift of molecular markers, as seen in other organisms.

Methods: MLVA and VNTR copy number variation were used to genotype M. leprae present in paired nasal swabs and biopsy from 38 leprosy cases. Using VNTR analyses of the 16 loci, 15 loci VNTRs were selected for the genotyping of M. leprae strains, which included eleven microsatellites [(AT)17, (GTT)5, (GTA)9, (AC)8b, (AC)8a, (AT)15, (AC)9, 21-TTC, (TTG/GAA)21, (TA)18 and (TA)10] and four minisatellites (6-7, 27-5, 23-3 and 12-5).

Results: This comparative analysis revealed no variation in five of the cases. Another 20 cases were seen with similar genotypes. However, seven leprosy cases were seen with differences in more than five loci. Greatest variability was seen at the TTC/GAA21 (20 out of 38), followed by the 17_AT repeat (17 out of 38). Most of the differences were due to a loss or gain of a single repeat unit, with some cases showing more than three unit differences at the 17_AT, TTC/GAA21, 18_TA, 13_AT and 9_GTA loci. No significant difference was seen in time frame (ranging from one to 60 months, with an average of 24 months) between first lesion appearance and sampling diagnostics in the identical VNTR pattern group compared to those with more than five loci difference.

Conclusion: Since in the majority of the cases, the copy number difference is only in a single repeat unit, the variability is probably due to clonal instability within VNTR. In the other seven cases, infection with two different strains of M. leprae appears more probable because more than five VNTR differ simultaneously in three or more units.
GENOME-WIDE SCREENING OF MI RNA AND MRNA EXPRESSION IN LEPROSY

A. F. F. Belone 1, P. S. Rosa 1, A. P. F. Trombone 1, L. R. V. Fachin 1, E. A. Silva 1, C. C. Gideлина 1, S. O. U. 1, J. A. Barreto 2, M. Pinilla 2, A. F. Carvalho 1, D. M. Carrar 1, F. A. Soares 3, C. T. Soares 1, 1Pathology, Biologico, Univerisy of Sao Paulo, Brazil; 2Agricultura, FAPESP (2010/19286-3).

Introduction: The pathophysiological mechanisms of leprosy at the molecular level are virtually unknown. Clarification of these is crucial to understand the pathophysiology and to discover new ways of treating the disease. Recently, technological advances in the expression profiling of the microRNA (miRNA) and mRNA levels have made possible to evaluate the changes in the components of multiple pathways, mRNAs are small non-coding RNAs and are post-transcriptional regulators of expression, and miRNA, involved in numerous cellular processes, such as development, differentiation, proliferation, apoptosis and metabolism. The aim of this study was to determine the microRNA-mRNA expression across the spectrum of leprosy and reactional states and their potential to identify miRNA gene targets calculating correlations between the signature microRNA and their corresponding miRNA targets, predicted by bioinformatics.

Results: Of the 27,958 mRNAs and 2,066 miRNAs evaluated, 1,046 human mRNA (fold=2.0) and 77 human mRNA (fold=1.5), with p<0.05, were differentially regulated, when comparing leprosy control samples. OASL gene expression was knocked-down in THP-1 cells by transfection with siRNA using lipotransfection.

Conclusion: These results suggest that OASL plays a role in the response to mycobacteria and provide a potential new candidate gene for prevention or intervention.

MYCOBACTERIUM LEPRAE INFECTION TRIGGERS A TYPE-I INTERFERON-DEPENDENT OLIGODENYLATED SYNTHETASE-LIKE (OASL) ANTI-MICROBIAL GENE

T. G. Toledo-Pinto 1, A. B. R. Ferreira 1, M. Ribeiro-Alves 1, L. T. A. Guerreiro 1, C. S. Marques 1, T. R. Brito 1, R. M. R. Lemos 1, A. N. Martinez 1, F. G. Souza-Neto 1, P. S. Rosa 1, M. J. Rodrigues 1, E. J. Shannon 1, M. C. V. Pessolani 2, S. L. G. Antunes 1, E. N. Sarno 1, F. A. Lara 1, D. L. Williams 1, M. O. Moreir 1

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Introduction: Although the invasion strategy of Mycobacterium leprae in the host cell is known, the specific mechanisms that underlie the intracellular survival of mycobacteria is poorly understood. Type I interferon and cytoplasmic DNA signaling (CDS) has been defined as negative regulators of protective immune responses triggered by virulent mycobacteria infection. In the current study, we profiled gene expression of Schwann cells infected with live M. leprae using the type I IFN differentially expressed genes by microarray analysis, pinpointing the highest up-regulated gene, 2’-5’ oligoadenylate synthetase-like (OASL). Therefore, the aim of this study was to determine the role of OASL during infection by M. leprae and to evaluate the immunoregulation of the infection process.

Methods: A global gene expression of primary Schwann cells infected with viable M. leprae was performed by microarray. Differentially expressed genes were also validated by qRT-PCR. Western blot and immunocytochemistry using THP-1 macrophage-like cells infected with viable M. leprae. OASL gene expression was knocked-down in THP-1 cells by transfection with siRNA using lipotransfection. M. leprae viability was determined by qRT-PCR. A genetic association study of single nucleotide polymorphism (SNP) in the OASL gene was performed testing 2013 individuals (521 leprosy cases and 498 controls) in a case-control study.

Results: Induction of OASL and the type I IFN pathway tag miRNAs were upregulated in THP-1 cells. Lipofaction of naked M. leprae DNA, but not RNA, to the cytoplasm also induced OASL, linking this gene directly to the CDS pathway. It was also detected a phagosome break in the infected cell with live M. leprae after anti-LAM staining and ESA6-mRNA expression was detected in a dose-dependent manner. Then, OASL gene silencing had a direct effect on intracellular M. leprae survival, inducing upregulation of proinflammatory cytokines and apoptotic genes, reverting M. leprae survival phenotype. Finally, a single nucleotide polymorphism (SNP) in the OASL gene was associated with leprosy in case-control study. This SNP was also associated with OASL lower levels in nerve biopsies of patients exhibiting neuropathy.

Conclusion: These results suggest that OASL plays a role in the response to mycobacteria and provide a potential new candidate gene for prevention or intervention.

MYCOBACTERIUM LEPRAE INFECTION TRIGGERS A TYPE-I INTERFERON-DEPENDENT OLIGODENYLATED SYNTHETASE-LIKE (OASL) ANTI-MICROBIAL GENE

M. V. F. Balagon 1,2, and ILEP-Technical Committee; NLEP Stakeholders & Partners-India

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Introduction: Early findings suggest that the rate of treatment defaulters and grade-2 deformities in leprosy is proportionately higher in urban compared to rural areas. Since then, the poor implementation of leprosy control programs in urban settings has become a global concern, thus the need to find strategic measures to address this issue. This study was conducted to identify and address major issues and challenges in urban leprosy control through sharing of experiences, good practices and recommendations to improve the delivery of leprosy services in urban settings.

Methods: Consultations regarding major challenges and recommendations to improve the quality of urban leprosy services were conducted through a consultative workshop and e-field survey. The consultative workshop was conducted in late 2012 among major stakeholders in urban leprosy control throughout India. An online survey has also been conducted targeting leprosy workers in the global community. Key issues include case detection, treatment, reactions, disability prevention, rehabilitation, education, human resources and program management.

Results: The workshop report has been drafted whereas the online survey is still in progress. Initial findings suggest that compared to rural areas, leprosy control programs in urban settings are less structured and poorly implemented. Major contributing factors in the poor delivery of services include high patient mobility particularly in slums and industrial areas where most of urban cases reside, lack of educational activities, lack of trained staff and poor coordination among public and private health workers resulting to a weak surveillance system. Though tertiary health care facilities are present in urban settings, the primary health care system is generally weak and poorly coordinated. General recommendations to improve the quality of services in urban areas include the identification and training of dedicated leprosy staff to focus in highly endemic, underserved urban localities and the designation of existing, strategically located health centers as primary level referral centers in urban areas. It is also important to organize a nodal agency or an“urban leprosy committee” to specifically tackle outstanding issues in priority areas. These are the areas wherein basic services need to be addressed according to special features of the urban locality. These features include issues on migration, rapid urbanization, existing health authorities and population density which vary greatly between urban localities. (Note: More information will be added once all data from the online survey are available)

Conclusion: Rapid urbanization brings challenges such as migration, overcrowding, marginalized urban and underserved populations and difficult access to basic health services including leprosy services. Measures to address these issues should focus on training and proper coordination among stakeholders to assure long term sustainability of quality services in urban leprosy. Interventions of varying intensity should be tailored to the major health issues of specific urban localities.
**PRESENTATIONS**

**O-019**

**Presentation Time:** Tuesday 17/09/2013 at 11:00 – 12:30  
**Symposium Session:** Leprosy Control - Urban and Special Populations  
**Presenter:** Verkota Ranganadha Rao Pemmaraju

**FEED BACK FROM PERSONS AFFECTED ON LEPROSY SERVICES IN URBAN AREAS: A RAPID ASSESSMENT STUDY**

V. R. R. Pemmaraju 1, K. S. Baghotia 2, P. R. Manglani 1, R. Babu G 1, S. Peri 1, M. Mamatha GB 1, R. K. Allam 1, A. Samy 1

1Programmes, LEPROSA Society, Secunderaband, 2Programmes, State Leprosy office, 3Programmes, Netherlands leprosy relief, New Delhi, 4Programmes, ALERT India, Mumbai, India

**Introduction:** Multi Drug Therapy (MDT) was provided at Urban health centres for all registered patients requiring chemotherapy. Disability care services were made available for patients with deformities in secondary level referral centres established under the Disability Prevention and Management Rehabilitation (DPMR) programme of the National Leprosy Eradication Programme (NLEP) in India. A Rapid assessment was done to get a feed back on leprosy services and their involvement in NLEP.

**Methods:** A sample of 30 urban locations in India has been identified for assessment of leprosy situation and capacity of health staff. The main tool is interview of persons affected from 30 urban locations. Questionnaire was designed and field tested before collecting information using Microsoft Excel. Field investigation team after training collected information and computerised the data. The data was analysed to understand the pattern of 365 persons affected seeking leprosy services in 77 health facilities. The persons included affected persons who are living in leprosy colonies. Information about age, gender, distribution, occupations of persons affected and residential status was collected and analysed. Information about patterns of referral to NLEP and treatment seeking were analysed.

**Results:** The analysis of data indicated that 266 persons (73%) contacted officials or staff of health system and 13% contacted private sector. Remaining 14% reported for consultation themselves. 11.8% of irregularity of collection of MDT was observed while interviewing 68 patients who were living away from health facilities. The irregularity of collection of MDT was seen in 4.7% of patients, who were staying closer to health facilities. 167 (46%) patients were having visible deformities. 21 patients were not satisfied with the services provided at urban health centres. Involvement of persons affected in planning and implementing urban leprosy services, is as low as 50%.

**Conclusion:** Leprosy is still an important public health problem. Private practitioners seems to be playing an important role in both referring new patients and ensuring disability care. Besides training of health staff to improve regularity of collecting MDT, the health facilities should be established closer for easier access. Involvement of persons affected by leprosy needs encouragement for better urban health services.

**O-020**

**Presentation Time:** Tuesday 17/09/2013 at 11:00 – 12:30  
**Symposium Session:** Leprosy Control - Urban and Special Populations  
**Presenter:** Mauricio Nobre

**GENDER DIFFERENCES IN INTOLERANCE TO MULTI-DRUG THERAPY (MDT) FOR LEPROSY**

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**Introduction:** Multi-drug therapy (MDT) is used world-wide for treatment of leprosy. The rate of medication tolerance resulting in change in MDT regimen varies in the recent literature, from 81.3% intolerance occurred within the first three months of MDT. The most common causes of medication intolerance were anemia (8.7%), headache (4.2%), cyanosis (1.8%), and gastrointestinal symptoms (1.6%). Both female gender (OR=2.63, p<0.001) and age less than the median of 42 years old (OR=2.7, p=0.001) remained risk factors for MDT intolerance in a multivariate model with a trend towards association of the PB regimen with MDT intolerance (OR=1.57, p=0.08). With intolerance due to anemia as the outcome, only female gender (OR=3.86, p=0.001) and age less than 42 years old (OR=1.86, p=0.041) were associated.

**Conclusion:** We report a rate of adverse events requiring change in MDT of 14.9%, which is lower than the 24% reported by Deps (2007), but higher than the 5.1% reported by Singh (2011). This study did not take into account minor side effects of MDT, such as skin pigmentation due to clofazimine or minor anemia, which did not lead to change in MDT regimen. In the current study, the occurrence of anemia requiring change in MDT was more than twice as high in women as in men. Women treated with the PB regimen had the greatest chance of change in MDT regimen overall (23.6%) and related to anemia (13.8%). Our findings that female gender and younger age were associated with greater risk of medication intolerance and that 81% of intolerance events occurred within the first three months of MDT have important operational implications for drug intolerance monitoring during MDT therapy for leprosy.

**O-021**

**Presentation Time:** Tuesday 17/09/2013 at 11:00 – 12:30  
**Symposium Session:** Leprosy Control - Urban and Special Populations  
**Presenter:** Dr T M E DAberea

**“LEPROSY EPIDEMIC” IN A RURAL SRI LANKAN COMMUNITY**

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**Introduction:** In the countries which still have high new case finding rates geographical pockets exist and such sub district level pockets contributes largely to finding of new cases. Such pockets are characterized by the detection of leprosy cases over a long period of time and this presence of leprosy for longer periods had caused continuation of transmission possible. Given the long incubation period of the disease and the presence of subclinical and yet infectious states, curbing transmission in such contexts has become a challenge. In contrast, this paper describes a Muslim community of displaced people in 1992 because of the civil unrest and having to settle down in a safe area away from their villages as displaced people among whom an unusually high number of leprosy cases have been detected in 2012.

**Methods:** In 2012 an increasing number of leprosy cases were reported at the dermatology clinic at the base hospital, Puttalam. The alerted public health staff then conducted field clinics in the area of displaced people called Thambapanni in Puttalam which enabled the detection of 30 cases. Having detected such a large number of patients in field clinics a decision was made to do a house to house survey among this Muslim community of 166 households. Interviewer administered questionnaire and a clinical examination instrument were designed after consulting the Indian instrument used in the recently concluded Indian survey. Newly graduated doctors were used as field assistants together with public health inspectors, public health midwives and volunteers who visited houses in small teams of five health workers. A small component of screening for non communicable diseases such as blood pressure measurements, random blood tests for glucose and measurements of heights and weights (BMI calculations) were also added to the survey instrument as to maximize the use of house to house medical check-ups. In total six visits by the teams to the community that comprised of 12 days of survey and six field clinics to confirm the diagnoses were conducted in Thambapanni. Patients with confirmed diagnoses were issued the first pack of MDT and referred to the dermatology clinic at Puttalam Hospital for follow up. Others in whom the diagnosis was not confirmed were referred to the Dermatology clinic for confirmation. Data collected were entered in computers at the Regional Director of Health Office, Puttalam.

**Results:** Field Survey and the Clinic yielded 70 leprosy patients. Out which 30 were children below 15 years of age and 23 cases of women. There was a preponderance of female patients. However 165 people who were expected to be residents were not available for examination at the field survey and majority of them are males. Out of the patients detected only one patient had a grade 2 disability. Similarly only one case of Multi Bacillary Leprosy was found. Out of the individuals examined 7.9% had leprosy (both at the clinics and surveys) 20% of the households examined had at least one leprosy patient while 5% of the households had more than one patient. Meanwhile 3.6% of the households had at least one adult and a child affected.

**Conclusion:** This paper depicts the classic circumstances under which even low infectious disease such as leprosy could reach “epidemic” proportions. It shows conclusively the vulnerability to disease among displaced people due to civil unrest. Further the paper points to the consequences of neglecting neglected diseases amidst other health, political and social priorities.
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1District Leprosy Office, Directorate of Health Services, Coimbatore, 2German Leprosy & TB Relief Association, Chennai.

LEPROSY IN UNDER-PRIVILEGED TRIBAL POCKET IN SOUTH INDIA

Introduction: Intensive leprosy control measure by Government of India has brought about remarkable reduction of leprosy burden in the country. Present issue seems to be the leprosy endemic regions of varying population sizes. It was reported from Ashaura in Bihar state of India (Indian J Lepr 1988 Oct 60(4):577-80) and Orissa state of India (Lepri Rev 2000 Sep;71(3):377-81) that large number of new cases of leprosy were detected from tribal population. A referral leprosy hospital in Chhattisgarh state of India (Indian J Lepr 2011 Jan-Mar;83(1-2):9) reported that 9% among 151 annual new cases was from tribal population. Government of India has been implementing Special Action Plan in 2012 in the identified leprosy endemic regions (blocks with about 200,000 population each of which are sub-units of districts) which may include some tribal regions.

Coimbatore district is an industrial region situated in Tamilnadu state bordering Kerala state. The border area is characterised by hilly region, forests and tribal population. The district reported highest number of cases of leprosy (1,591 tribal population that is 0.7% of total population of the district (3,956,476). Leprosy situation in Thondamuthur block of Coimbatore district which has good number of tribal population is presented.

Methods: This is a retrospective analysis of newly registered leprosy cases in Thondamuthur Block, Coimbatore district, India. Leprosy treatment register in the three Primary Health Centres in this Block were the source of data from 2004 to 2012. New cases from tribal community was compared with block level data with regard to number, type of leprosy, child cases and visible deformity at detection. Statistical analysis was done using Epi info.

Results: Population of the block was 146,425 including 4,378 (3%) tribal population. Thondamuthur block registered a total of 121 new leprosy cases during the study period which include 16 from tribal community. About 1 to 4 new cases were registered from tribal community annually. MB proportion was less (p=0.003) among tribal (12%) than total for the block (45%). Child proportion (p=0.003) and visible deformity among new cases were higher among tribal community than for the whole block. One health sub-centre alone had reported 11 leprosy cases during this period. Many villages did not report leprosy case. One group of villages had most of the new cases reported. Less MB proportion was contrary to the general observation that MB leprosy was more among tribal population than non-tribal.

A study on healthcare-seeking behaviour (J HEALTH POPUL NUTR 2012 Sep;30(3):353-365) clearly show that the present service-delivery system needs to be reviewed carefully in order to establish a practical, community-friendly healthcare, culturally-adapted delivery system for the tribal population.

Conclusion: Magnitude of leprosy in Tribal community seems to be disproportionate to general trend. Tribal population might be vulnerable for leprosy probably due to their remoteness, poor literacy and socio-economic status and/or genetic factors. Operational issues like availability of services and reach of leprosy control services need to be compared to that of non-tribal region. It is possible that specific groups like tribal population may be outside the reach of leprosy control programme. This study recommends detailed analysis of leprosy situation and development of sustainable strategy specific to tribal region including good monitoring system to ensure positive impact.

O-023

Presentation Time: Tuesday 17/09/2013 at 11:00 – 12:30
Symposium Session: Leprosy Control - Urban and Special Populations
Presenter: Dr Atul Shah

SPECIAL AWARENESS DRIVE FOR NEW CASE DETECTION IN URBAN SLUMS OF MUMBAI

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1Director, Novartis Comprehensive Leprosy Care Association, Mumbai, India

Introduction: In an effort to limit the number of people afflicted by leprosy in the mega-city of Mumbai, Novartis Comprehensive Leprosy Care Association initiated a partnership with the Mumbai District Leprosy Program Office at a workshop organized for paramedical workers. It was decided that NCLCA supported drive would use the trained government staff itself as opposed to other “Selective Special Drive” by others in which community volunteers are trained for 2 days to conduct search. NCLCA supported drive shall focus on house-to-house leprosy awareness creation in areas untouched in the previous year. The approach developed was simple and derived from the earlier leprosy elimination campaigns. Hoardings were put up announcing the drive with a message from a local political leader and seeking co-operation of the residents. Posters were prepared for the IEC campaign and put up in the community places. Leaflets were used to show the inhabitants the signs and symptoms of leprosy and leading questions were asked as to whether any member of the family has such signs and symptoms.

Results: In this drive a team of workers visited the local houses, where the inhabitants residing in the houses were enumerated and educated with the aid of special leaflets depicting signs and symptoms of leprosy. At the end of the sessions, inhabitants were asked to come forward asking for clarity on some of the symptoms, which they felt were relevant and could be associated with leprosy, making the m a suspect case. Since all the workers, supervisors and medical officers taking part in the drive were available in the field, on the spot confirmation was quick. Nearly 4,7000 houses were visited, 200,000 population was enumerated, 150,000 were examined and 30 new cases were detected. The prevalence rate of these areas varied from 0.63 to 2.41 in the enumerated population and 0.61 to 3.84 in the examined (covered) population.

Conclusion: In conclusion, quick confirmation of cases with trained workers, selecting the uncovered population for case detection, intense awareness campaign and person to person dialogue with houses visited may be considered as suitable technique for urban slum areas. Temporary increase in FR will need to be considered and NCDR will need to be checked in the coming year.

O-024

Presentation Time: Tuesday 17/09/2013 at 11:00 – 12:30
Symposium Session: Nerve Function and Impairments
Presenter: Dr Irina Raicher

PREVALENCE AND CHARACTERISTICS OF LEPROSY-RELATED NEUROPATHIC PAIN: VALIDATION OF TWO TOOLS

I. Raicher 1,*, P. R. Stump 1, R. Baccarelli 2, L. H. Marciano 2, S. Ura 3, M. C. Virmond 3, M. J. Teixeira 1, D. C. de Andrade 1

1Medical School of University of Sao Paulo, Sao Paulo, 2Instituto Lauro de Souza Lima, Bauru, Brazil

Introduction: Pain is a prevalent complaint in Leprosy (Le) patients. Among the pain syndromes in Le, neuropathic pain (NeP) has been described in greater proportion, however studies on Le patients with pain in large samples are scarce. For the general practitioner diagnosis of NeP can be challenging, screening tools have been evaluated to detect NeP in Le, but have not been validated in large samples of Le patients with pain. The profile of NeP symptoms in Le has never been compared to other aetiologies. The present study was aimed at assessing the sensitivity and specificity of the DN 4 to detect NeP in Le patients with pain and to compare Le-related NeP symptoms profiles to NeP of other causes.

Methods: Le patients with primary complaint of pain were evaluated by trained health personnel who filled out the Brazilian Version of the DN-4 questionnaire and the Brazilian Version of the Neuropathic Pain Symptom Inventory (NPSI). Then patients were seen by a blinded pain specialist who classified them according to the presence or not of defined neuropathic pain (d-NeP) according to the new IASP definition. Leprosy clinical characteristics, pain profile and the sensitivity and specificity of the Brazilian Version of the DN-4 questionnaire for defined neuropathic pain were evaluated. NPSI were compared between Le patients (n=87) and neuropathic pain patients of other aetiologies (n=94).

Results: The specialist detected neuropathic pain in 72 (80%) patients. The DN-4 questionnaire detected neuropathic pain in 77 (95.6%). Agreement occurred in 79 cases (87.8%). Sensitivity was 96%, and Specificity, 58%, with a power of 98%, and false negative response in 3 individuals. NPSI scores showed not to be statistically different between Le and neuropathic pain of other aetiologies, except for number of panosyndromes during the last 24h and stabbing pain. Pain triggered by stabbing score was 5.95+/-.4.1 in Le and 4.01+/-.4.07 in NeP of other causes (p=0.001). Higher scores in the NPSI correlated with more severe interference of pain in activities of daily living (r=0.53, p< 0.0001).

Conclusion: The DN4 showed a high sensitivity as a screening tool for neuropathic pain in Le cases. Also these results suggests that Le related NeP showed similar symptoms profiles as NeP of other aetiologies, with a similar negative impact in daily activities. This information could be useful in the design of treatments trials for NeP in this population.
PRESENTATIONS

O-025

Presentation Time: Tuesday 17/09/2013 at 11:00 – 12:30
Symposium Session: Nerve Function and Impairments
Presenter: Jose Gartono

SOFTWARE FOR ASSESSING NERVES IN LEPROSY

J. A. Garbino 1, 2, L. F. M. Bento 1, T. Marques 1, C. M. D. P. Quaggio 1, S. M. T. Nardi 1, A. R. J. Nicholl 3, C. Bentim 1, M. C. L. Virmond 1 4

1Rehabilitation - Clinical Neurophysiology, Instituto Lauro de Souza Lima, 2Informatica, SORRRI Bauru Rehabilitation Center, Bauru, 3Occupational Therapy, Instituto Adolfo Lutz, Sao Jose do Rio Preto, 4Rehabilitation, SORRRI Bauru Rehabilitation Center, Rehabilitation, Instituto Lauro de Souza Lima, Bauru, Brazil

Introduction: The diagnosis of nutritional lesions interrupp is usually performed by a clinical examination which consists of nerve palpation, sensory mapping, and muscle strength testing associated with other methods such as visual analogical scale of pain assessment. These tests can be together numerically graded to constitute parameters for monitoring nerve function, starting with the diagnosis and continuing throughout the specific treatment with multidrug therapy and immunosuppressive therapy during reaction episodes. These clearly characterized parameters facilitate clinical trials. Currently, manually prepared records are attached to the patient's chart, hindering the organization and the immediate or long-term visualization of nerve function, aiming at reliable longitudinal studies and statistical analyses.

Hence, the authors developed a software program for data logging neurological leprosy patients, which may permit the automatic construction of a Clinical Score (CS), time series graphs, reports, and real time reliable statistical analyses.

Methods: The authors analysed the protocols of investigation of neural function that are routinely used in attendance at the Instituto Lauro de Souza Lima and coded the epidemiological and general clinical data to the patient's identification icon. The results of the examinations of sensory mapping (Semmes Weinstein), voluntary motor testing, nerve palpation, and visual pain scale are presented separately in icon and an internal logic was created to convert them into CS, reflecting the degree of impairment. The chosen CS was previously used in a randomized clinical trial which proved to be appropriate for statistical analysis (Garbino et al, 2008). The CS data and the therapy, i.e., medication dosage - immunosuppressive or anti- algic drugs - are transformed into linear graphs of each nerve throughout the follow-up period in the clinic. In order to test the efficacy of the software, simulations were performed with the inclusion of retrospective data from medical records of 30 patients and the prospective evaluation of 30 patients followed up for 3 months to 3 years. Correlations were also observed with the result of the CS of each nerve during medical treatment and after nerve surgery.

Results: The software shows patient's identification, epidemiological and clinical examination data, as well as overall ratings, in separate windows. There are special windows for each individual clinical test used, i.e.: nerve palpation, sensory test, motor voluntary test, visual analog scale for pain and therapeutic dosage. The software offers simplified visualization of the evolution of neuropathy by the CS, linear graphs for each nerve and dosage of immunosuppressive or anti-algic drugs - are transformed into linear graphs of each nerve throughout the follow-up period in the clinic. In order to test the efficacy of the software, simulations were performed with the inclusion of retrospective data from medical records of 30 patients and the prospective evaluation of 30 patients followed up for 3 months to 3 years. Correlations were also observed with the result of the CS of each nerve during medical treatment and after nerve surgery.

Conclusion: For this presentation the authors showed the videos for each evaluation, the graphical results for each patient with all nerves, drug graphs and the possibilities for data comparison among them.

O-027

Presentation Time: Tuesday 17/09/2013 at 11:00 – 12:30
Symposium Session: Nerve Function and Impairments
Presenter: Mr Sathish Paul

EFFECT OF TACTILE SENSORS IN DETECTING PRESSURE THRESHOLD OF ANESTHETIC HANDS

S. K. Paul 1, 2, R. V 1, S. Sivarasu Ph. D 1

1Ph. D Scholar, Assistant Professor, VIT University, Vellore, India, 2MIIR, Bio Medical Engineering Division, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa

Introduction: The nerve damage in a leprosy affected person causes significant impairments if not detected and treated early. Impairments further leads to inability in carrying out their normal activities of daily living. The nerve damage in the extremities leads to loss of sensation and sweat along with motor paralysis. Identifying the pressure threshold in the patients affected by leprosy at an early stage will help in detecting high pressure areas thus preventing secondary impairments. The research aims in developing tactile sensors embedded in fabrics and used with gloves which when provided to the leprosy affected persons will help in predicting the pressure threshold level while carrying out their functional activities.

Methods: Customized software was developed and the variations in the superficial pressures of the hand were recorded using tactile sensors while the patients were being involved in their routine daily living activities. The distribution patterns of the pressure in pre defined areas of hand were traced while the patients hand function activities involved the grasp and pinch powers. The study were conducted on (n = 100) patients from different job profile, gender and from different geographical location.

Results: The glove embedded with the tactile sensors helped identify pressure variations in the pre defined areas while the patients were involved in specific hand function activities. The pattern of the result suggests that the pressure is maximal while in the middle of an activity and is minimal at the onset and the end of the activity. The buzzer set along the glove gave an instant auditory feedback to the patient on the activity which causes prolonged high pressures to the hand.

Conclusion: The robust sensors can be used on any patients irrespective of their profession and will help predict the pressure threshold while doing their normal activities. The cost effective device also will help predict the ulcer prone areas in the anesthetic hands and feet in the leprosy affected patients. The portable device can be used anywhere in the community and will help in prescribing appropriate orthosis and adaptive tools and appliances for the patients and help prevent ulcers while doing their activities.
The effectiveness of modified felted foam dressing in chronic plantar ulcer treatment in persons affected by leprosy at Raj Pracha Samasai Institute, Samutprakan Province

P. Thanyakittikul 1,2

1Department of Disease Control (DDC), Raj Pracha Samasai Institute, Nonthaburi, Thailand

Introduction: According to information related to persons affected by leprosy who attended anesthesia skin Out Patient Department (OPD) of Raj Pracha Samasai Institute (RPSI), it was found that the most common ulcer among them was chronic plantar ulcer. The average time that persons affected by leprosy had suffered this type of ulcer was 5 years per person. As it took a long period of time to treat plantar ulcer, it was unavoidable affected the quality of life of persons affected by leprosy. This research was done to study the effectiveness of felted foam dressing in curing chronic plantar ulcer.

Methods: This quasi experimental research was conducted by using one group pretest-posttest design to compare the effectiveness of ulcer care in leprosy patients who lived in the leprosarium of RPSI and who attended ulcer care service at chronic ulcer clinic, anesthesia skin OPD of RPSI. Study volunteers were 30 persons affected by leprosy who had chronic plantar ulcers. Inclusion criteria were persons who had simple ulcers for at least 5 years and were able to communicate. Data analysis was done using software computer programs. Frequency was used to display personal information. Paired = Sample T - Test was used to identify the correlation of pre and post size of ulcers. One Way Anova and Independent Sample T – test were used to analyze correlation between contributing factors and duration taken for ulcer curing. Pearson Correlation Coefficient was used to analyze the correlation between age and duration taken for ulcer curing. A p-value of <0.05 was considered indicative of a statistically significant difference or association.

Results: After intervention, the size of ulcers of the study subjects were significant smaller than before. Most of study subjects’ ulcers were cured (96.9%) within eight week. There was only one subject who had 20mm ulcer that was not completely cured. 87.5% of study subjects were satisfied with the treatment. There was significant positive association between marital status and the size of plantar ulcer before intervention, and duration taken for ulcer curing. There was also significant positive association between age and duration taken for ulcer care.

Conclusion: It was suggested that to provide quality service to persons affected by leprosy who have chronic plantar ulcers, regularly wound assessment should be done. To establish sustainable services with continual wound assessment, feel health records should be produced for patients who have plantar ulcers. Experimental study should be further carried out to compare the effectiveness of applying felted foam dressings between control and experimental groups or compare the effectiveness of different wound care dressing. Self care behavior of the study subjects should also be included as expected contributing factor in the further study.

Association degree of physical disability and postural control in subjects with leprosy

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Introduction: Leprosy (LP) is an infectious disease caused by Mycobacterium leprae which can cause visual, systemic and nervous disturbances. LP, if not diagnosed and treated properly, can lead LP subjects to physical disabilities and deformities. The degree of physical disability is measured by neurological assessment of eye, upper and lower limbs; neurological diseases; and/or wounds on the plantar region. Subjects were selected from Unidade de Atendimento Ambulatorial de Fisioterapia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, Brazil. All participants signed a consent form. We evaluated the degree of physical disability (PD) of right (R) and left (L) eye (PDRE, PDLE) and leg (PDRL, PDLL) which ranges from 0 to II according to the Ministry of Health (Brazil).

Methods: The study comprised 24 subjects with LP (age=43.88±11.96 years; BMI=28.61±3.85 kg/m²), 19 men (79.2%) and 5 women (20.8%). We excluded subjects who had amputation of pressure displacement (COPd) for each condition: mean velocity of COPd in anterior-posterior (a-p) (MVy) and medio-lateral (m-l) (MVx) directions, and root mean square of COPd in a-p (RMSy) and m-l (RMSx). Quotients were calculated to quantify the sensory (visual, proprioceptive and vestibular) contributions to postural control: visual quotient (VQ), the ratio between variables of condition (2) and (1); proprioceptive quotient (PQ), ratio between variables of condition (3) and (1); vestibular quotient (VestQ): ratio between variables of condition (4) and (1). Spearman’s rank correlation coefficient was used to associate the degree of disability to each quotient value in LI. Significant level was adopted as p<0.05.

Results: The mean time since diagnosis of Leprosy was 5.33±4.11 years (8 [33.3%] had Indeterminate LP; 1 [4.2%] Tuberculoid LP; 2 [8.3%] Borderline LP; 6 [25%] Lepromatous LP; and 7 [29.2%] Not specified LP). We found significant positive and moderate association between PDRL and PQ MVx (p=0.014; r=0.493), PDRL and PQ RMSx (p=0.03; r=0.443), and PDRL and VQ RMSy (p=0.021; r=0.470), and PDRL and VestQ RMSx (p=0.006; r=0.544).

Conclusion: Subjects with LP showed association between the degree of physical disability and postural control.

Sustainability of leprosy services and financial self-reliance of an erstwhile leprosy hospital: sharing experiences from TLM community hospital at Delhi metropolis India.

S. R. J. Levi 1, S. Mir 2, S. Mir 1, R. Thandawan 3, S. Mehta 1, S. Abraham 2

1Administration, 2Medical Records, 3Medical superintendent, The Leprosy Mission Community Hospital, Delhi, India

Introduction: India is ranked as 2nd biggest or fastest growing economy in the World; but on the contrary it continues to be developing stage with many challenges faced such as poverty, food scarcity, deprived of basic amenities, weak infrastructure, social problems etc. The gap between the rich and poor is widening markedly. An estimated 33% of the total Indian people fall below the poverty line. An estimated 33% of the total Indian people fall below the line.
INTERNATIONAL PRESENTATIONS
48

O-032
Presentation Time: Tuesday 17/09/2013 at 11:00 – 12:30
Symposium Session: Training in Leprosy
Presenter: Mrinmoy Karmakar

EFFECTIVENESS OF TRAINING OCCUPATIONAL THERAPY AND PHYSIOTHERAPY INTERNS IN LEPROSY
M. Karmakar 1,*, N. Simick 1, N. Mahato 1, S. Paul 1, J. Joshua 1, H. Roberts 1

OCCUPATIONAL THERAPY, PHYSIOTHERAPY, POID CO ORGANIZER, PLASTIC SURGERY, OPHTHALMOLOGY, THE LEPROSY MISSION TRUST, INDIA, KOLKATA, India

Introduction: Training is often regarded as the solution to the lack of expertise in leprosy in the general health care system. One of the remaining challenges for leprosy control activities at country level is to build and maintain leprosy expertise among general health care workers, particularly in countries where endemicity of leprosy is low. This study was designed to assess the effectiveness of training interns to perform occupational therapy and physiotherapy in leprosy.

Methods: A total number of 40 interns, 17 Occupational Therapy (OT) & 23 Physiotherapy Interns (PT) underwent training on “Clinical and surgical leprosy” Pre-test and post-test was designed that checked their performance on the following sections: Clinical Leprosy, The Eye in Leprosy, Prevention of Impairment and disability (POID) Reconstructive surgery (RCS), Occupational therapy & Hand therapy and Podiatry. The trainer’s feedback was also taken in consideration to evaluate the training program.

Results: Paired t-test was used to analyze the results of the pre-test and post-test scores of each section. There is a significant difference between the pre-test and post-test scores in all the sections (P<0.00). Feedback from the trainers showed that most of them agreed that they had learnt new skills in leprosy and gained new knowledge and also they will be using the newly learnt skill in their practice.

Conclusions: Though training has improved the knowledge of leprosy among interns in OT and PT but with the decreasing number of leprosy patients, the question arises about how much the interns will be retaining in their clinical practice, because they will be coming across patients only at fairly long intervals. A long term follow up needs to be done to find out how much the trainees have retained.

O-033
Presentation Time: Tuesday 17/09/2013 at 11:00 – 12:30
Symposium Session: Training in Leprosy
Presenter: Artur Gosing

THE EXPERIENCE OF LEPROSY DERMATOLOGY TRAINING FOR FAMILY HEALTH PROFESSIONALS IN PIRAI, RIO DE JANEIRO
B. Carvalho 1, I. Lavinas 1, A. P. Gosing 1, K. Brun 1, E. Campos 1, F. Lutz 1, M. K. Gomes 1,*, and Interdisciplinary Program of Leprosy - HUUFF/UFRJ

FEDERAL UNIVERSITY OF RIO DE JANEIRO, Rio de Janeiro, RJ, Brazil

Introduction: Since 2010 the city of Pirai in Rio de Janeiro state has a decentralized program for leprosy control associated to “Des(mancha)” Brazil Project. Family health professionals are one of the most important part of approach for leprosy care in communities associated with primary units care. The purpose of this study was to present the results of family health strategy training in leprosy.

Methods: Professors of dermatology performed the training of family health professionals during clinical sessions for the assessment of cases with possible diagnosis of leprosy and other dermatosis in Pirai County in Rio de Janeiro. The clinical sessions occurred during the year of 2012, each one with different case studies, clinical dermatosis characteristics and instruments of assessment and diagnosis.

Results: 183 people with injuries in skin were assessed during 9 clinical sessions and 11 new cases receive diagnosis of leprosy, 7 multibacillary and 4 paucibacillary. One of the cases with leprosy has less than 15 years old and two cases change the classification for multibacillary. It was realized the control of 94% of the contacts of these cases. The professionals found others dermatosis such as sporotrichosis, superficial mycoses and melanosis. A flowchart for assessment and diagnosis of leprosy was organized to help family health professionals.

Conclusion: The training helps family health professionals to improve assessment and diagnosis of new cases of leprosy. There was an increase of the interaction between all care units in Pirai helping the knowledge of leprosy.

O-034
Presentation Time: Tuesday 17/09/2013 at 11:00 – 12:30
Symposium Session: Training in Leprosy
Presenter: Mr Henk Eggens

THE DEVELOPMENT OF A TRAINING NEEDS ANALYSIS IN LEPROSY CONTROL FOR NATIONAL PROGRAMMES
H. Eggens 2,*, C. Pfaff 2

Eggens Consult, Custo do Mosteiro, Portugal, NLN, Maastricht, Netherlands

Introduction: The expected further reduction of new leprosy patients requires the formulation of a plan how leprosy expertise is developed and maintained as an integral part of strategies for sustaining leprosy control and referral systems. This paper relates the development process of a Training Needs Analysis (TNA) as part of an all inclusive capacity development strategy for leprosy. A TNA provides the needs of a leprosy control program on whom to train (type of staff), what to train (training domains), how to train (methods and tools) and where to train (at national and international level). It also includes an estimated budget and the required contextual conditions.

Methods: The first step in developing a sustainable and systematic plan for human resource development in leprosy control programs is a Training Needs Analysis (TNA), implemented by the national leprosy control manager. A TNA distinguishes six phases: 1. Context Analysis, 2. Capacity Needs Inventory, 3. Performance Analysis, 4. Training Solutions, 5. Training Program and 6. Management’s arrangements. In 18 well-defined steps, the size and content of existing staff performance gaps in Leprosy Control are revealed. What differences do exist between “What should be done” and “What’s done in reality”? What can be done to decrease or eliminate these gaps?

After a TNA, the leprosy control manager, together with his/her staff, is expected to be able to write up a systematic, result based, multi-annual training program for national leprosy control staff that deals effectively with identified staff performance gaps and resulting in improved service delivery in future.

Results: After the presentation of the tested draft proposal to the national leprosy managers of three WHO regional meetings for national leprosy control managers: Brazzaville, Congo (AFRO, May 2010), Colombo, Sri Lanka (SEARO, July 2010), and Beirut, Lebanon (EMRO, December 2010).

Methods: The first step in developing a sustainable and systematic plan for human resource development in leprosy control programs is a Training Needs Analysis (TNA), implemented by the national leprosy control manager. A TNA distinguishes six phases: 1. Context Analysis, 2. Capacity Needs Inventory, 3. Performance Analysis, 4. Training Solutions, 5. Training Program and 6. Management’s arrangements. In 18 well-defined steps, the size and content of existing staff performance gaps in Leprosy Control are revealed. What differences do exist between “What should be done” and “What’s done in reality”? What can be done to decrease or eliminate these gaps?

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Results: After the presentation of the tested draft proposal to the national leprosy managers of three WHO regional meetings in 2010, the applicability of the adapted and improved draft TNA was tested by the authors in a 3-4 day workshop with national and/or regional leprosy staff in the following countries: Mozambique (April 2011), Indonesia (June 2011) and Nepal (August 2011).
In none of these countries the TNA resulted within a reasonable time span in a realistically budgeted, systematic, result based, multi-annual training program.

Conclusion: The Training Needs Analysis developed by the authors as part of a comprehensive Capacity Development Strategy for leprosy control was considered a useful tool by the developers and supported by NLR and WHO Global Leprosy Program. However, after testing the tool in three different settings it appears that it is not yet ready for broad implementation. Further analysis is needed to enhance this tool for national leprosy control programs.

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through primary health care facilities. WHO-TDR supported multi-centric trial aimed at assessing efficacy of a six-month multi-drug therapy (MDT) regimen currently recommended for multi-bacillary (MB) patients as uniform MDT (U-MDT) for all types of leprosy patients (Clinical Trials Registry of India: 2012/05/002696). The primary objective is to assess whether U-MDT results in maintaining a maximum acceptable cumulative level of 5% relapse rate at the end of 5 years. We present results of interim analysis at completion of five years of the study.

Methods: The open design trial requiring 2550 newly detected, previously untreated patients each in multi-bacillary (MB) and paucibacillary (PB) groups is being conducted in six sites in India (Kollam, Thiruvananthapuram, Villupuram, Pune, Agra and Rohtak) and two sites in China (Guizhou and Yunnan). In the annual follow-up of enrolled patients, clinical improvement (inactive, improved or static) is recorded based on standardized clinical criteria. An individual, who after completion of treatment develops one or more new skin patches consistent with leprosy, without evidence of treatment, is considered to have relapsed. The rationale, design and preliminary results had already been published (Axel et al., 2008). We calculated relapse rate per 100 person-years (PY). We compared the proportion with inactive lesions in PB and MB groups by Chi-square test. The person year relapse rates were compared by using mid-p exact test. The study is scheduled to be completed by 2014.

Results: The study enrolled 3396 patients during 2003-2008. Of these, 38% were MB and 4% had grade 2 disability. Of the 3096 who completed treatment, skin lesions were inactive in 42% of PB (n=1331) and in 10% of MB (n=122) patients (p=0.95; p<0.01). At the end of five years of follow-up, lesions were inactive in 89% in PB patients and 77% in the MB group (p<0.01). Totally 1031 adverse events were reported and 50% were reported from MB group. They included 16% migrations and 7% deaths were reported in the MB group. In the PB group, migrations were 26% and deaths 4.4 In the MB group, 13% and 15% developed new lesions and neuritis respectively and 18% had type I and 5% had type II reactions. In the PB group, the adverse events reported were 3.5% new lesions, 6.0% neuritis, 8% type I reaction, and 1.3% type II reaction. Six patients (MB=4, PB=2) had clinically confirmed relapse that occurred between the first and third year of follow-up. The relapse rate among MB patients was 0.076 per 100 PY and among PB patients was 0.023 per 100 PY (p<0.19).

Conclusion: The observed low relapse in the interim analysis indicates that U-MDT treatment is efficacious in improving the clinical status of skin lesions of both types of leprosy. We observed significant difference in the proportion of inactive lesions between the PB and MB group. However, high proportion of inactive lesions in MB documented the effectiveness of shortened duration of U-MDT regimen. Although final study results would emerge in 2014, the global and national programmes can start considering programmatic implications of the reported findings.

O-039
Presentation Time: Tuesday 17/09/2013 at 14:00 – 15:30
Symposium Session: Chemotherapy 1
Presenter: Ponnaiyah Manickam
EFFECTIVENESS OF SINGLE DOSE CHEMOTHERAPY IN PAUCIBACILLARY LEPROSY PATIENTS: SUMMARY OF EVIDENCE FROM CLINICAL TRIALS IN INDIA

P. Manickam 1, B. Nagaranj 1, V. Selvaraj 1, S. Balasubramaniam 1, V. Mahalingam 1, S. Mehdane 1, V. K. Pannikar 1, M. Gupta 1 and Team of Study Investigators

1National Institute of Epidemiology, ICMR, Chennai, India, 2Formerly with, National Institute of Epidemiology, ICMR, Chennai, 3Former Team Leader, WHO-GLP, 4Indian Council of Medical Research, New Delhi, India

Introduction: Globally, leprosy services are offered through general health services. Paucibacillary (PB) leprosy forms a substantial proportion of newly diagnosed patients in South East Asia. Compliance to WHO’s multi-drug therapy (MDT) for six months is a known hurdle in leprosy control programmes. We conducted three randomized double blind placebo controlled trials for PB patients with single or 2-3 or 2-5 lesions during 1994-95, 1996-97 and 1998-2003 respectively. In these trials, we determined efficacy of single-dose regimen containing rifampicin, ofloxacin and clofazimine (ROM) against six-month MDT (WHO-MDT) in terms of complete clearance of lesions and compared treatment failure or relapse rates. We provide a comparative analysis of findings from these trials.

Methods: Patients were randomized to ROM or WHO-MDT arms for six months. The trial involved 1483 single lesion PB patients (ROM=744; WHO-MDT=739) from nine centres with a post-treatment follow-up for 18 months. The trial of 2-3 lesions PB enrolled 236 patients (ROM=118; WHO-MDT=118) from five centres who were followed-up for 18 months post-treatment. In the third trial of 2-5 lesions, 1526 patients were involved (ROM=762; WHO-MDT=764) were enrolled from five centres. In the third trial, post-treatment follow-up was 36 months at all the study centres but two centres completed follow-up of 1082 patients for 48 months. A clinical score was assigned to each patient based on disappearance of lesions, reduction in hypopigmentation / erythema or degree of infiltration or lesion size and improvements in sensation in the lesion (score range: 0-15). Complete clearance was defined as complete disappearance of the lesion or scar formation. Deterioration or treatment failure was defined as appearance of new active skin lesions, definite signs/ symptoms of new peripheral nerve trunk damage, confirmed positive slit skin smear at any site observed during the follow-up or no improvement in clinical status at the end of the follow-up. Relapse was defined as occurrence of new active skin lesions with or without positive skin smear at any site. We calculated percent clearance and relapse rates [(per 100 person-years (PY)] and compared them using Fisher or mid-p exact test.

Results: In single-lesion PB patients, complete clearance of skin lesions in ROM (47%) and WHO-MDT regimen (55%) was statistically significant (p=0.004). There were six treatment failure (0.9%) in both the arms. Complete clearance in 2-3 lesions PB patients was 38% in ROM compared to 46% in WHO-MDT (p=0.3) and treatment failure was 3.8% (n=4) in each arm. In the PB patients with 2-5 lesions, complete clearance was similar (72% vs. 72.1%; p=0.95) in both the arms. In 36 months post-treatment follow-up, relapse rates were higher among ROM (n=29) than WHO-MDT (n=13) (1.13 vs. 0.33 per 100 PY; Fisher’s exact=0.001). Further, complete clearance was similar (75% vs. 79%; p=0.25) and no further relapses (0.64 vs. 0.3 per 100 PY; p=0.07) occurred in two centres that performed extended follow-up to 48 months.

Conclusion: Single-dose ROM is equally efficacious to six month WHO-MDT regimen for all types of PB leprosy. ROM could be considered as an alternative treatment regimen for PB leprosy. Trials with additional dosing ROM may be done in treating relapses.
Results: The study was conducted in Bankura district of West Bengal, India. The district is high endemic and reported an ANCDR of 39.28 per 100,000 population and a PR of 2.82 per 10,000 population in 2011-12. A convenience sample of 15 parents whose child was on MDT, participated in the study. The sample size was determined by the non-emergence of new themes and data saturation. After obtaining an informed consent, the parents were interviewed in their homes about experience with the diagnosis and treatment of their child. The interview guide was semi-structured and covered five themes, viz. symptoms and care-seeking behaviour, experience with MDT and health system and stigma and discrimination in the community. The framework approach was used for analysis of the transcribed interviews.

Results: Majority of the children were students and belonged to the age group 9-14 years. White patch was the most common initial symptom which prompted the parents to seek care from the health worker. Ten out of the 15 children had been diagnosed as MB. The drugs were usually self-administered by the child. Majority of the children were reported to be adherent to MDT, however, a few cases were observed to be taking them incorrectly. Black skin discoloration was the most common side effect and the children were often made fun of at school due to the discoloration. This had led to non-adherence among a few children and also school absenteeism. All the parents were ignorant about the symptoms of reactions and the importance of reporting them early. Two children were found to be suffering from reaction and were not identified. Their parents expressed anguish and concern that despite being on MDT, the symptoms had flared up.

Conclusion: One of the major successes of the National Leprosy Eradication Programme in India has been the integration of leprosy services with the general healthcare system. This has enabled early case detection. The current challenges lie in ensuring treatment completion and early care-seeking and management of complications in the form of reactions to prevent disabilities. The framework approach was used for analysis of the transcribed interviews. Results: The proportion of students that believed that leprosy patients under treatment would not readily infect others increased from 51% to 76% by the end of the competition. Only 7% of the students knew that leprosy is curable compared to 78% post-intervention. This suggests a positive change in students’ knowledge and it is believed that as the message is spread, it will help in fighting stigma as well as lead to increased case finding.

Conclusion: Engaging the youth through schools debate/quiz appears to be a promising approach of improving school-children awareness on leprosy and may lead to greater public awareness.

Results: The result given proved to be productive. Data were analyzed from 14 projects supported by GLRA India located in 6 states (9 projects located in high endemic districts/ urban locations). A total of 584,120 school children in 481 schools were physically screened over a period of 3 years from 2010 to 2012. About 1831 suspects were identified and further screened by Para Medical Supervisor followed final validation by Medical Officer. A total of 104 new cases of leprosy were diagnosed includes 15 early MB cases. Child NCDR per 100000 populations was 17.80, 14.15 and 12.38 respectively over the years. None of the new cases developed visible deformity but 7 children showed muscle weakness. All those 104 affected children were put on MDT and 89 completed their treatment at end of December 2012.

Conclusion: In post integration scenario, annual school survey yielded considerable leprosy suspects and assisted in early case detection. Further it promoted raising awareness among younger generation. Involvement of teachers and students together in case detection process helps to reduce stigma associated with leprosy. This specific strategy of screening school children for leprosy could be done more systematically in school along with routing school health check up at least in the endemic districts.

Presentation Time: Tuesday 17/09/2013 at 14:00 – 15:30
Symposium Session: Information, Education and Communication
Presenter: Joseph Chukwu
MODERNISING THE FIGHT AGAINST LEPROSY – PILOT ON SCHOOLS DEBATES
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Introduction: Despite achieving the WHO elimination target at national level since 1998, the Nigerian national TB and leprosy control programme continues to notify over 3,000 new leprosy cases every year. This amounts to a case detection rate of 1.8 per 100,000 population. About 20% of these cases have visible deformities at diagnosis with a child proportion of 8%. This means that over two hundred children (0-14 years) are affected by leprosy in this cohort.

Conclusion: Modernizing the fight against leprosy – Pilot on School Debates

Presentation Time: Tuesday 17/09/2013 at 14:00 – 15:30
Symposium Session: Information, Education and Communication
Presenter: Francisco Carlos Lana
HOUSEHOLD SURVEY ABOUT THE PERCEPTIONS OF POPULATION ABOUT HANSEN’S DISEASE IN A HIPERENDEMIC AREA FROM BRAZIL
F. C. F. Lana 1, A. P. M. Carvalho 1, V. G. Cardoso 1, A. D. C. O. Fabri 1, M. A. A. F. Lautner 1, E. P. Amaral 1
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Introduction: Hansen’s disease involves biological, cultural and social aspects in its dynamics and should be understood as a complex disease. Despite the advance of scientific knowledge, it remains as a public health problem in Brazil, with high detection and prevalence rates in some regions of the country. This situation suggests the existence of a gap between the scientific and technical knowledge of the disease and the appropriation by the population of such knowledge. The lack of knowledge of the population and the misinformation leads to the continuity of the cycle of disease’s transmission and the emergence of more severe clinical forms, which contributes to both the maintenance of the disease and the stigma that surrounds it. The present
study aims at analyzing how the urban population from Almenara perceives the Hansen’s disease and its relations with the detection rates, the socioeconomic conditions and the access to health services.

Methods: It is an epidemiological cross-sectional study, configured as a survey. The place of study was the city of Almenara, located in the Jequitinhonha River Valley, State of Minas Gerais, Brazil. It was used a structured instrument divided into five sections: identification and family composition, housing and environmental conditions, epidemiological and social aspects, service organization and individual participation in disease control. 737 household interviews were conducted in 23 census tracts stratified according to the detection rates. The epidemiological data were processed and analyzed statistically using the softwares Epi Info (version 3.5.1), MS Excel (version 2003) and SPSS (version 18). The study was approved by the Ethics Committee of Universidade Federal de Minas Gerais and the Municipal Health Almenara. This research was funded by the Fundação de Amparo à Pesquisa do Estado de Minas Gerais.

Results: The sample was composed with a predominance of female gender and of individuals with low education and low family income. By comparing the perceptions of individuals from areas with different detection rates of Hansen’s disease, it was found that this was not the only factor that influences the level of knowledge about the disease. The level of education, the occurrence of a case in the family, the family income and the access to health services also had influence about that knowledge. The majority of the population from Almenara identifies the Hansen’s disease as a public health problem in the city, although they do not recognize initiatives to control the endemic and neither look for information about the disease. People associate the Hansen’s disease with other pathologies, confusing scientific knowledge with beliefs of popular origin or with preconception relate with the history of the disease.

Conclusion: Therefore it is necessary to invest in programs and innovative strategies of health education, so that individuals be able to recognize of signs and symptoms, promoting the looking for the health services timely and thus contribute to breaking the chain of transmission, prevention of physical deformities and consequently to reducing the stigma.

O-045

Presentation Time: Tuesday 17/09/2013 at 14:00 – 15:30
Symposium Session: Immunology 1
Presenter: Indira Nath

In order to increase knowledge about the facts of leprosy but also it improves voluntary reporting, health seeking behavior and disseminating information about the services and facilities available for leprosy to all community members. The study reveals that the level of KAP on Diabetes mellitus is poor than leprosy among the community members. Since the diabetes mellitus is a associated disease with leprosy, it recommends that increase knowledge on this disease to community and leprosy patients to prevent further impairment and disability and to control diabetes mellitus by using various health education materials and methods. Key words: knowledge, stigmas, inhibitors, literacy, health seeking, health education

O-046

Presentation Time: Tuesday 17/09/2013 at 14:00 – 15:30
Symposium Session: Immunology 1
Presenter: Indira Nath

INCREASED EXPRESSION OF REGULATORY T CELLS LEPROMATOUS LEPROSY

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Introduction: The mechanisms underlying the unresponsiveness in lepromatous leprosy has been a debatable topic. In recent years the subclass of T cells that are FoxP3+ cells have been implicated in immune suppression of diseases and designated as Regulatory T cells(Treg). The present study was undertaken with a view to exploring the role of these cells in the T cell unresponsiveness associated with leprosy.

Methods: PBMC and skin biopsies from the 30 leprosy patients and 4 healthy subjects were investigated for gene expression of Treg signatures viz. Foxp3, TGFβ, IL10. Gene expression was undertaken using real time PCR (qPCR). Data were normalized with HPRT housekeeping gene. Histochemical staining of cell surface markers and nuclear marker Foxp3 was done on skin biopsies. ELISA was undertaken for cytokines TGFβ and IL10 (e-Bioscience USA). Flowcytometry was used for confirming the phenotype of FoxP3+ cells for T cell surface markers, CD3, CD4, CD8, CD25 and intracellular TGFβ and nuclear Foxp3. PBMC from 30 leprosy patients classified on the basis of Ridley Jopling classification were stimulated in vitro with heat killed armadillo derived M. leprae antigens for 48 hrs after establishing the optimum time kinetics whereas Skin lesions were investigated with histochemistry and qPCR. Data were analyzed using two tailed Mann Whitney test. P values of less than 0.05 were considered significant.

Results: Tregs were quantified by flow cytometry (CD4+ CD25hi FoxP3+ ) in peripheral blood mononuclear cells stimulated in vitro with and without M. leprae antigen and phytohemagglutinin (PHA). M. leprae antigens induced significantly higher Treg numbers in lepromatous than tuberculoid patients and contacts. However, it was only the CD4+ and not CD25+ T cells that showed intracellular TGFβ. Using qPCR we confirmed the increased expression of Foxp3 expression in PBMC cultures (p<0.0002) and skin lesions (p<0.04). Interleukin-10 (IL-10), interferon-γ (IFN-γ) and transforming growth factor β (TGF-β) in supernatants as well as cells of in vitro stimulated peripheral blood mononuclear cells were investigated for expression by qPCR and protein by ELISA. TGFβ expression was increased significantly (p<0.0002) in lepromatous as compared to tuberculoid patients and healthy contacts in both PBMC cultures and in skin (p<0.01). As expected significantly lower IFNγ (p<0.001) was found in the same group of patients. IL10 showed a dual pattern. Whereas it was higher in T patients in PBMC cultures (p<0.01) it showed increase in skin lesions.

Conclusion: Lepromatous leprosy is associated with increased Foxp3 expression in both PBMC and Skin. However, histochemistry was less sensitive in detecting differences in the leprosy spectrum as compared to qPCR. Moreover, lepromatous patients showed TGFβ increase both in PBMC and skin as compared to T patients indicating its role in mediating immunosuppression associated with this disease.

O-048

Presentation Time: Tuesday 17/09/2013 at 14:00 – 15:30
Symposium Session: Immunology 1
Presenter: Kidist Bobotsha Aboma

ROLE OF TH17 CELLS IN THE LEPROSY SPECTRUM

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Introduction: The leprosy spectrum has been an enigma for immunologists where no consensus is available on the Th 1 and 2 paradigm or macrophage defects. Tuberculoid(Th) and lepromatous (L) patients at the two ends of the leprosy spectrum were investigated with a view to understanding the role of regulatory cells. Th 17 cells which are implicated in immune mediated diseases.2.

Methods: PBMC and skin biopsies from the leprosy patients (30) and healthy subjects (05) were investigated for gene expression RT-PCR (qPCR, 5A Biosciences, MD,USA), histochemistry of cell markers, ELISA undertaken for cytokines IL 17 and other associated cytokines which play a part in differentiation and maintenance eg. IL17A, IL17F, IL22, IL23, IL23, IL6 (e-Bioscience USA). Flowcytometry was T cell surface markers, CD3, CD4, CD8, CD69 and intracellular IL17 and IL23.

Changes in the level of KAP among the community members were high when comparing with Diabetes Mellitus. It shows that the impact of sustainable health education model on the community members. Since the diabetes mellitus is a associated disease with leprosy, it recommends that increase knowledge on this disease to community and leprosy patients to prevent further impairment and disability and to control diabetes mellitus by using various health education materials and methods. Key words: knowledge, stigmas, inhibitors, literacy, health seeking, health education

ORAL PRESENTATIONS

ROLE OF TREGS IN LEPROSY

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Introduction: Much of the stigma associated with leprosy stems from inadequate or incorrect knowledge about the disease and its current treatment. Inadequate or incorrect information about the disease and its treatment are the root causes of many stigmas and inhibitions prevalent in the various sections of the community. Leprosy has been widely prevalent in the control area of Schieffelin Institute of Health Research Leprosy Center (SIHRLC) Karigiri for several decades. The institution has been implementing several innovative methods in health education to reduce the burden of disease, to minimize stigma and discrimination and increase knowledge about the disease. A large survey was carried out in two areas of Vellore district to assess and compare the level of knowledge, attitude and practice (KAP) towards Leprosy and Diabetes Mellitus among general population that differed widely in the amount of health education received about these diseases. This paper aimed to assess the level of Knowledge Attitude Practice (KAP) among community members on leprosy compared to diabetes mellitus.

Methods: A semi-structured questionnaire was developed and used to assess KAP on leprosy and diabetes for the study. The questionnaire consists of a minimum of 8 subjects and maximum of 10 subjects with objective type used for assessing KAP on the diseases. The KAP was conducted by trained community health workers to collect data among both gender adult community members from the endemic and neither look for information about the disease. People associate the Hansen’s disease with other pathologies, confusing scientific knowledge with beliefs of popular origin or with preconception relate with the history of the disease.

Conclusion: Therefore it is necessary to invest in programs and innovative strategies of health education, so that individuals be able to recognize of signs and symptoms, promoting the looking for the health services timely and thus contribute to breaking the chain of transmission, prevention of physical deformities and consequently to reducing the stigma.

O-045

Presentation Time: Tuesday 17/09/2013 at 14:00 – 15:30
Symposium Session: Immunology 1
Presenter: Dr Mannam Ebenezer

CHANGES IN THE LEVEL OF KNOWLEDGE, ATTITUDE AND PRACTICE OF COMMUNITY MEMBERS REGARDING LEPROSY AND DIABETES MELLITUS THROUGH INTENSIVE COMMUNITY SENSITIZATION PROGRAM

18th International Leprosy Congress • Hidden Challenges
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Introduction: Despite almost 30 years of effective chemotherapy with MDT, the global new case detection rate of leprosy has remained constant over the past years. New tools and methodologies are necessary to interrupt the transmission of M. leprae. Single-dose rifampicin (SDR) has been shown to prevent 56% of incident cases of leprosy in the first two years, when given to contacts of newly diagnosed cases. Immunization of contacts with BCG has been less well documented, but appears to have a preventive effect lasting up to 9 years. However, one major disadvantage is the precipitation of excess cases within the first year after immunization. The objective of this study is to examine the combined clinical and immunological effect of chemoprophylaxis with SDR and immunoprophylaxis with BCG, in contacts of new cases of leprosy. We hypothesize that the effects of both interventions may be complementary, causing the combined preventive effect to be significant and long-lasting.

Methods: Through a cluster randomized controlled trial we compare BCG alone with BCG plus SDR in contacts of new leprosy cases. Contact groups of around 15 persons will be formed for each of the 1300 patients included in the trial, resulting in a total of around 20,000 contacts. The intervention group will be given BCG followed by SDR. The control group will receive BCG only. In total, 10,000 contacts will be included in each intervention arm over a 2-year period. Follow-up will take place one year after intake. The primary outcome is the occurrence of clinical leprosy within one year. Simultaneously with vaccination and SDR, blood samples for laboratory tests will be taken from 300 contacts participating in the trial to determine the effect of chemio- and immunoprophylactic interventions on immunological- and genetic markers of infection.

Results: The intake of the trial started in June, 2012. Up to the end of 2012, a total of 75 new patients have been recruited and 980 of their contacts have received BCG vaccination. We will present details of the procedures of the trial and provide an update of the intake, together with safety aspects of BCG vaccination to contacts of leprosy patients.

Conclusion: Combined chemoprophylaxis and immunoprophylaxis is potentially a very powerful and innovative tool aimed at contacts of leprosy patients that could reduce the transmission of M. leprae substantially. The trial intends to substantiate this potential preventive effect. Evaluation of immunological- and genetic biomarker profiles will allow identification of pathogenic vs. BCG-induced protective biomarkers and could lead to effective prophylactic interventions for leprosy by optimizing tools for identification of individuals who should best be targeted for prophylactic treatment.

**O-051**

**Presentation Time:** Tuesday 17/09/2013 at 14:00 – 15:30

**Symposium Session:** Chemoprophylaxis and Contacts

**Presenter:** Dr Christina Widianagri

**CHROMOPHOPHILAXIS WITH SINGLE-DOSE RIFAMPICIN FOR CONTACTS OF PATIENTS WITH LEPROSY: AN OPERATIONAL STUDY IN SAMPANG, INDONESIA

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Introduction: More than 10 years after reaching the target of elimination of leprosy at national level, the number of new leprosy cases detected annually has not decreased in Indonesia and there are indications of continued transmission in the country. The previous studies on chemoprophylaxis with rifampicin showed robust results: the risk of developing leprosy reduces by 60% among contacts in study setting. To investigate the feasibility in an ordinary setting, implementation of chemoprophylaxis has been undertaken in one high-endemic district to assess operational conditions required, acceptance and perception of community, persons affected by leprosy and health workers regarding single-dose rifampicin chemoprophylaxis.

Methods: This intervention was conducted in Sampang district, which has 837,275 population. Single-dose rifampicin was administered to the contacts of leprosy patients along with rapid village survey activities. Subsequently chemoprophylaxis administration was embedded in routine contact examination activities. Twenty contacts of each index case were targeted for chemoprophylaxis. Each contact takes rifampicin at the first and the third year of the study. Chemoprophylaxis coverage was quantified and barriers that occurred during the implementation were assessed through in-depth interviews and focus group discussions among person affected by leprosy, contacts, community leaders and health workers.

Results: A total of 1,038 leprosy index cases were enrolled in this health centre-based study and only 743 index cases have been screened so far. Altogether 16,762 household, neighbour and social contacts were screened. A total of 914 contacts were excluded from the study due to not being available, refusal to participate, being a TB suspect, and under rifampicin therapy.
Of the total screened, 15,848 individuals were given a single dose of rifampicin (76%). Some of the remaining 5,900 contacts will be screened on the first and second quarter of this year. In operational implementation, chemoprophylaxis made contact examination more attractive, because health workers had a preventive drug to offer during the contact examination. Some community members no longer perceived leprosy as hereditary since a preventive drug is available. Even non-contacts were asking for chemoprophylaxis. However, some issues were encountered, such as decreased motivation after the initial campaign phase, health workers being overburdened, problems with informed consent, problems with disclosure, discrimination following disclosure, not using the term ‘leprosy’ during health education or counselling with patients or contacts and issues related to funding.

Conclusion: Overall chemoprophylaxis intervention was well accepted by index cases, contacts, community members, health workers and local leaders and received very positive feedback. Implementing chemoprophylaxis in a routine district health programme is possible, embedded in contact examination. The implementation policy should give specific attention to informed consent, confidentiality and disclosure.

O-052

Presentation Time: Tuesday 17/09/2013 at 14:00 – 15:30
Symposium Session: Chemoprophylaxis and Contacts
Presenter: Sabiena Feenstra

PATIENT-RELATED FACTORS PREDICTING THE EFFECTIVENESS OF RIFAMPICIN CHEMOPROPHYLAXIS IN CONTACTS: 6 YEARS FOLLOW UP OF THE COLEP COHORT IN BANGLADESH

S. G. Feenstra 1,*, D. Pahan 2, F. J. Moet 1, L. Oskam 3, J. H. Richardus 1

1Erasmus MC, Rotterdam, Netherlands, 2TLMI-B, Dhaka, Bangladesh, 3KIT Biomedical Research, Amsterdam, Netherlands

Introduction: The COLEP trial in Bangladesh showed a 57% reduction in leprosy incidence among contacts of newly diagnosed patients in the first two years after chemoprophylaxis with single dose rifampicin (SDR). We assessed the impact of this intervention after 6 years and identified characteristics of the leprosy index patients predicting the effectiveness of this intervention.

Methods: The cohort of 1,037 patients and their 28,092 contacts that participated in the randomized placebo controlled field trial with single dose rifampicin was followed for 6 years. The leprosy status of contacts was established at 2, 4 and 6 years after the intervention. We assessed the association between characteristics of the index leprosy patients and the development of clinical leprosy among their contacts using logistic regression.

Results: The protective effect of SDR was seen only in the first 2 years, with no additional effect after 4 and 6 years. However, the total impact of the intervention was still statistically significant (p=0.025) after 6 years and no excess cases were observed in the SDR arm at a later stage. The intervention prevented leprosy in contacts that actually received SDR, but did not offer protection to members of the same contact group who did not take chemoprophylaxis. The intervention was most effective in contact groups of female index patients, an enhanced effect was also observed in contact groups of patients belonging to a cluster of two or more leprosy patients at intake as well.

Conclusion: These easy to recognise patient characteristics indicate a possible enhanced risk of transmission of Mycobacterium leprae to contacts in the vicinity of patients and are useful for deciding about preventive measures, such as early detection or chemoprophylaxis.

O-053

Presentation Time: Tuesday 17/09/2013 at 14:00 – 15:30
Symposium Session: Chemoprophylaxis and Contacts
Presenter: Sabiena Feenstra

ACCEPTABILITY OF CHEMOPROPHYLAXIS FOR HOUSEHOLD CONTACTS OF LEPROSY PATIENTS IN BANGLADESH: A QUALITATIVE STUDY

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Introduction: Chemoprophylaxis with single dose rifampicin is a promising intervention to prevent leprosy in close contacts of patients. However, application in control programmes often requires disclosure of the leprosy diagnosis, which is still a stigmatised disease in many countries. Promoting control and treatment of stigmatised diseases without contributing towards stigma of the individuals involved can be very difficult. The objective of this study was to assess the social acceptability of disclosure of the diagnosis and the attitude towards taking prophylactic medicines in a leprosy endemic area in Bangladesh.

Methods: Qualitative study through focus group discussions with 136 healthy men and women from different age groups and religions, coming from two rural villages and an urban area in northwest Bangladesh, and 14 health workers with extensive experience with leprosy patients.

Results: The participants would not object to disclosure of the diagnosis to household members and nearby family if they were diagnosed with leprosy. However, many participants were not willing to share this information with their neighbours and other social contacts due to stigma of the disease. All healthy participants were willing to take chemoprophylaxis if any of their close contacts were diagnosed with leprosy, even after explaining that full protection against leprosy was not guaranteed.

Conclusion: It can be concluded that chemoprophylaxis for household contacts of leprosy patients is an effective and socially acceptable addition to the current leprosy control programme. Chemoprophylaxis for other categories of contacts likely to benefit would only be feasible, without disclosure of patient information, if given in the form of mass campaigns for the whole population in the area.

O-054

Presentation Time: Tuesday 17/09/2013 at 14:00 – 15:30
Symposium Session: Chemoprophylaxis and Contacts
Presenter: Krisada Mahotarn

EFFECTIVENESS OF SINGLE DOSE RIFAMPICIN IN PREVENTION OF LEPROSY AMONG HIGH RISK COMMUNITY CONTACTS

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Introduction: After implementation of multidrug therapy in Thailand in 1984 had resulted in gradual reduction of prevalence of leprosy and subsequently achieved WHO target of elimination of leprosy as a public health problem in 1994. However, the programme had not be able to reduce trend of detection – rate of new cases of leprosy as expected during post - eliminating phase from 1997 - 2002. Special research project on clinical trial of single dose of 600 mg of rifampicin as chemoprophylaxis of high risk community contacts of leprosy, therefore, had been launched from 2004 - 2010. The objective of study was to compare effectiveness between rifampicin and placebo as chemoprophylaxis for leprosy.

Methods: The design of our study was randomized double blind controlled trial. Effectiveness of such chemoprophylactic drug was evaluated by performing physical examination of contacts participated in the study at the fifth year of the trial in order to detect clinical signs of leprosy.

Results: Of all 201 index cases from high risk area, there were 2,749 contacts enrolled in our study. One thousand three hundred and thirty - nine contacts received rifampicin, while 1,400 received placebo. At 5 years, there were 7 leprosy cases detected from rifampicin group, whereas 14 leprosy cases from placebo group. The risk difference between the group was 0.0054 (95% CI = 0.0017 - 0.0193) which was not different by statistical analysis.

Conclusion: Our results revealed that there was no statistically significant difference of effectiveness among control and trial groups indicated that rifampicin was not effective to prevent occurrence of leprosy among high risk community contacts of leprosy.

O-055

Presentation Time: Tuesday 17/09/2013 at 14:00 – 15:30
Symposium Session: Chemoprophylaxis and Contacts
Presenter: Nidia Duppre

LATE LEPROSY CONTACT EXAMINATION MAY HAVE LOW IMPACT IN THE TRANSMISSION RATE.

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Introduction: Leprosy control in Brazil has improved significantly at the last years despite the number of new cases detected annually presents a very slow decline since 2007 -2010. Contacts investigations need to be a priority in order to interrupt transmission and eliminate leprosy as public health problem. In Brazil at 2011 the percentage of contacts examination was 59.8% considered regular. In 2010 the detection coefficient in children under 15 years was 5.2 per 100 thousand inhabitants that were considered very high. This data demonstrated that leprosy transmission in Brazil should actively improve case holding. The objective of this study is to evaluate the characteristics of the new cases of leprosy detected in the contact tracing based on the interval between diagnosis of the index case and the appearance of contacts be examined.

Methods: A retrospective study included 6,163 contacts of leprosy patients treated in Leprosy Outpatient Clinic (Leprosy Laboratory) between 1987 to 2009. The epidemiological and clinical characteristic of new leprosy cases among contacts were distributed to the interval between the moment of leprosy diagnosis to the index case and the appearance of contacts to be examined. It was considered late examination when contact appeared after treatment of the index case and
early examination when contact appeared any moment of the index case treatment. A logistic regression was applied to assess risk factors for those contacts examined later.

**Results:** During the study period, families of 1,206 index cases were examined (783 [65%] with MB clinical forms). Among the total of examined families 346 (28.7%) appeared after index cases treatment with 1,032 contacts examined. New leprosy cases were diagnosed in 295 of the total examined families (24.5%). Overall 325 new cases were diagnosed at the initial examination, 120 (36.9%) were from families who came late to be examined. From these 14 (11.4%) presented grade 1 disabilities and 50 (41.3%) presented MB forms. In this the interval between the diagnosis of the index case and the contacts examination was 4.6 years (sd= 3.3). The overall risk of leprosy among those later examined contacts was OR = 2.91 (95%IC 2.3 - 3.7) when compared to with early examination. For those under 15 years old this risk was OR = 1.38 (95%IC 1.1 - 1.9).

**Conclusion:** Our study demonstrates that the late contact examination does not allow to interrupt the chain of transmission and thus more contacts are diagnosed with disability and children are diagnosed with leprosy. Generally is accepted that contact examination is one of the most important methods in case finding of new leprosy cases in any leprosy control program. In Brazil, efforts should also focus in the monitoring and construction of indicators that allow assessing the effectiveness of the exam as such: Number of new cases of leprosy among contacts examined. Number of new cases with grade 2 disabilities and the number of multibacillary forms detected among contacts.

O-056

**Presentation Time:** Tuesday 17/09/2013 at 14:00 – 15:30

**Symposium Session:** Footwear

**Presenter:** Mr Satish Paul

**PROTECTIVE FOOTWEAR SUPPLY TO FOUR NORTHERN STATES UNDER THE DISABILITY PREVENTION & MEDICAL REHABILITATION (DFMR) ACTIVITIES OF THE NATIONAL LEPROSY ERADICATION PROGRAM (NLEP) IN INDIA**

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**Introduction:** Timely provision of suitable protective footwear to patients protects the feet from developing new deformities. Footwear provision to all the leprosy affected people and thereby prevention of further deformities is one of the major activities of the DFMR initiative (under ILEP) in India. The Leprosy Mission Community hospital in Delhi is one of the centers which have been recognized by the Indian Government in the provision of the protective footwear for the Leprosy affected persons. The Leprosy Mission Trust India (LMTI) MCR unit in Vizinagaram, the recognized centre by the Central Leprosy Division in India for the quality testing of MCR sandals have been manufacturing the MCR sandals for the LMTI hospitals.

**Methods:** Natural Rubber along with several other chemicals are used in optimum quantities in the manufacture of MCR rubber, thus giving the ability to the MCR to spring back to original shape when pressure is released while walking. The Micro cellular Rubber with a hardness of 15 ‘Shore A’ used along with upper straps made of Ethyl Vinyl acetate rubber without any buckles are used in fabricating a appropriate footwear. The footwear was supplied directly to the District Leprosy Officers in the states of Delhi, Punjab, Uttar Pradesh and Uttarakanthal. A support team from the Leprosy Mission consisting of a Doctor, Podiatrist, Shoe technician travelled to the colonies for examining and providing a custom made footwear to patient when the request was given by the District Leprosy Officers.

**Results:** The MCR footwear produced was more aesthetic and appealing for the patients to wear and thus reduce the stigma of ulcers and shortened feet. As per the request from the respective District Leprosy Officers MCR footwear were supplied to colonies and District civil hospitals. In 2010, a total of 1132 pairs MCR footwear were supplied to Punjab, 100 pairs to Delhi. In 2011, 400 pairs MCR footwear were supplied to Punjab and 50 pairs were supplied to Uttar Pradesh, 50 pairs to Delhi. In 2012, 1000 pairs were supplied to Punjab, 81 pairs to Uttar Pradesh and 250 pairs to Uttarakanchal, 40 pairs to Delhi were supplied. In 2013 till February 600 pairs were supplied to Punjab, 250 pairs to Uttarakanchal and 350 pairs to Uttar Pradesh were supplied respectively. The cooperation and support showed by the District program managers for Leprosy in Punjab has helped the leprosy affected patients get their protective footwear. The leprosy affected patients residing in certain states don’t get MCR sandals as they are migrated for work not from the same domicile, though they are eligible for 2 pairs of MCR sandals every year as per the DPMR guidelines. The plantar soft tissue padding is measured by a standard lateral radiograph of foot and ankle using 10 mm Micro Cellular rubber with podiatry appliances as per requirement.

**Conclusion:** Specific sites in the anestheic foot can be at higher risk of ulceration and may be identified using plantar skin resilience test. This conclusion needs to be further validated by a larger study. This may be less costly than the expensive test of plantar pressure measurement.

O-058

**Presentation Time:** Tuesday 17/09/2013 at 14:00 – 15:30

**Symposium Session:** Footwear

**Presenter:** Rajni Singh

**“STUDY OF SATISFACTION LEVEL OF PATIENTS WITH MICRO CELLULAR RUBBER FOOTWEAR IN BIHAR & JHARKHAND, INDIA”**

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1NGO, LEPRA Society, Patna, 2NGO, LEPRA Society, Dhanbad, India

**Introduction:** Protective footwear should be worn by all patients with sole sensory loss, whether or not they have foot problems leading to cracks and callousities. Paralysis of the intrinsic muscles of the foot also leads to thinning of the plantar pad. Both these will predispose to genesis of plant ulcer.

**Methods:** In this study the plantar skin resilience is tested by a durometer a device used to measure hardness. A durometer which is used for soft materials such as animal tissues is chosen. The plantar soft tissue padding is measured by a standard lateral radiograph of foot and ankle on which the soft tissue shadow is measured at standard points. The distance between the bony outline and skin outline is measured at heel, mid foot and 3rd metatarsal head.

Thirty normal feet were assessed for both plantar skin resilience and plantar soft tissue thickness. Twenty two feet, which had complete loss of sensation as assessed by Semmes Weinstein monofilaments, were assessed for plantar skin resilience and soft tissue padding.

**Results:** The results show that there is no difference as far as the plantar soft tissue padding is concerned between normal foot and anaesthetic foot either at the heel (3.9/2.0 cm) or mid foot (2.5/2.4 cm) or forefoot (1.4/1.7 cms). The plantar skin resilience was significantly increased in anaesthetic feet over the lateral border (15/11.5), under 1st metatarsal head (14/9.5), under 3rd metatarsal head (11.5/7) and under the 5th metatarsal head (14/7).

However the skin resilience at the heel (15.5/15.5) did not show any difference between the normal and the anaesthetic foot.

All the twenty two anaesthetic feet either had plantar ulcers or had scarring from previous ulceration indicating that plantar skin resilience probably has an impact on genesis of plant ulceration.

**Conclusion:** The study was designed to establish the plantar skin resilience and plantar soft tissue padding in the anaesthetic foot is significantly altered and these changes may have a role in the genesis of plant ulcer.

**Skin resilience in the anaesthetic foot is reduced because of loss of sweating and the resultant role in the genesis of plant ulceration.**

Factory supplies MCR footwear to all the four states in India. A total of 1,132 pairs of MCR footwear were supplied to Punjab, 100 pairs to Delhi, 400 pairs to Uttar Pradesh, 50 pairs to Haryana, 400 pairs to Punjab and 50 pairs to Delhi. In 2011, 1,000 pairs were supplied to Punjab, 81 pairs to Uttar Pradesh and 250 pairs to Uttarakanchal, 40 pairs to Delhi were supplied. In 2012 till February 600 pairs were supplied to Punjab, 250 pairs to Uttarakanchal and 350 pairs to Uttar Pradesh were supplied respectively. The cooperation and support showed by the District program managers for Leprosy in Punjab has helped the leprosy affected patients get their protective footwear. The leprosy affected patients residing in certain states don’t get MCR sandals as they are migrated for work from the same domicile, though they are eligible for 2 pairs of MCR sandals every year as per the DPMR guidelines. The plantar soft tissue padding is measured by a standard lateral radiograph of foot and ankle using 10 mm Micro Cellular rubber with podiatry appliances as per requirement.
The Questioner contents about fitting with feet, quality, color, design, availability, pressure points, durability, etc. Every week data will be sent to principal investigator for entry the data. 10% data will be cross checked for accuracy.

**Results:** The study shows 72% people are happy with design, color, pattern, finishing, and quality, etc., 21% patients wants the different color and which cover the whole foot (Should not show the claw toes), 3% people have got skin texture due to footwear, 86% people wearing footwear most of the time every day, 3% people is wearing every day for some time, 2% people wearing a few days every week and 9% people wearing rarely or never. 76% female has requested for other color (73%, Brown, 13- Red, 14% mixed color). 56% people requested for shoes which can to washable (Not leather).

**Conclusion:** Even this study shows high level of satisfaction with MCR footwear, there are still need to modify the footwear as per Patients requirement and satisfaction. If we not fulfill the satisfaction, than this will lead to non-compliance with wearing the MCR Footwear.

**MOULDED INSOLE FABRICATION FOR FOOT DEFORMITIES IN LEPROSY AFFECTED PATIENTS USING COMPUTER TOMOGRAPHIC IMAGES**

S. K. Paul 1,*, S. Sivarasu 2

1Research Scholar, Vellore Institute of Technology, Vellore, India 2Lecturer & Project Leader, MIRU Bio-Medical Engineering, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa

**Introduction:** The early prediction and management of plantar ulceration in patients with anesthetic foot such as in leprosy and diabetes have been major challenges in the field of health care all over the world. Sensory loss along with the underlying pathomechanics is one of the main causes for plantar ulcers in these patients. With increasing number of diabetic and existing foot cases, the problem requires more surgical interventions.

Clinicians can provide a means to better distribute the pressure around the foot, and can also correct the biomechanics of the foot by using a customized shoe insulin. If detected early enough, orthopedic insoles can correct or prevent further complications and deformities in a deformed anesthetic foot. In this study the 3 Dimensional (D) model of the foot was used to fabricate a customized orthosis.

**Methods:** The Computed Tomography (CT) images of leprosy affected patient’s foot with deformities were acquired. The gray intensities corresponding to the bones of the foot from the CT images were 3 dimensionally reconstructed. The 3D model of the foot was then imported into the Computer Aided Designing (CAD) Softwares. Boolean operations were carried out in between the 3D foot model and a solid rectangular surface to create a customized foot orthosis.

**Results:** The results demonstrate that the computerized orthotic fabrication method followed in this study was more reliable in acquiring the anatomical contours of the plantar foot surface for orthotic fabrication. The cost involved in the material used for the moulding processes like the Plaster of Paris Powder (POP), POP rolls and the wastage present in the manual method when we use materials like Ethyl Vinyl Acetate (EVA) and the thermoplastics are reduced by this method.

**Conclusion:** Orthopedic footwear plays an important role in the treatment and the prevention of ulcer in the diabetic as well as the leprosy patients. The current work is a novel technique in the fabrication of orthosis. This method reduces the use of more cumbersome techniques of taking cast measurements and making moulds. The simple method used in this study to fabricate a customized orthosis will help in reducing the plantar ulcer and its consequences considerably in a cost efficient way.

**ACCEPTABILITY AND CURRENT PRACTICE REGARDING FOOTWEAR FOR PEOPLE WITH INSENSITIVE FEET DUE TO LEPROSY**

S. K. Paul 1,*, S. Anand 2

1Evaluation team member, Coordinator, Monitoring & Evaluation, The Leprosy Mission Trust India, Delhi, India

**Introduction:** The role of footwear in lifelong protection of insensitive feet due to nerve damage in leprosy is well recognised but it remains an inadequately addressed area of Prevention of Impairment and Disability (POID). As a consequence, people with insensitive feet continue to neglect protective footwear resulting in ulcers and deformities, loss of productivity, stigma and enormous physical and mental suffering for them and their families.

The Leprosy Mission Trust India (TLMTI) has its presence in 8 states in India through 14 Tertiary Leprosy Referral Hospitals and 6 Vocational Training Centres (VTCs). To understand the effectiveness of its POID interventions in the management of insensitive feet of which appropriate footwear was an aspect, TLMTI conducted a POID Audit in 2012 in 6 hospitals and 3 VTCs.

**Methods:** The Audit was designed by a team of POID resource persons with leprosy expertise, both internal and external to TLMTI, and field tested in March 2012. The Audit was conducted in 6 hospitals and 3 VTCs in 7 states of India from April - June 2012. Audit teams consisted of physiotherapists, occupational therapists and doctors. Data for footwear was collected through observations, hospital records, Semi structured interviews and Focus Group Discussions with POID staff and people affected by leprosy in the hospitals, VTCs and community.

**Results:** Though biomechanical foot assessments were to be done for all insensitive feet before prescribing appropriate footwear or orthoses, for many it was missed and may indicate lack of expertise in podiatry and orthoses fabrication, or lack of time (high patient load). Mostly accommodative and functional foot orthoses were provided to patients who developed ulcers, and not to all with insensitive feet to prevent ulcers. There is stigma attached to microcellular rubber (MCR) footwear both in the wearer’s mind and in the community: more so towards the hospital made black MCR footwear. Provision of newer designs in straps has led to more acceptance of MCR footwear. There are many expectations by people regarding protective footwear. Regional customs and culture were also found to be barriers to using protective footwear.

**Conclusion:** Lifelong protection of insensitive feet through appropriate protective footwear that a person will accept and use is a challenge in POID. Footwear is being distributed without actually measuring its acceptability or understanding the social and physical barriers to wearing such footwear. Such research would be valuable both in designing acceptable/suitalbe models of protective footwear and in addressing the barriers to wearing the footwear through patient education, behavior change and advocacy. Emphasis needs to shift to participatory methods, for people to choose their own appropriate footwear and maintain it. If successful, this would mean that for many, it will no longer be necessary to provide free footwear. Such an approach needs an adjustment of the current practice and the corresponding information system. The need for specialised footwear for some will, of course, continue and innovations in developing custom made footwear within a short period for grossly deformed feet should be tried and capacity built for the same.

**O-061**

**Presentation Time:** Tuesday 17/09/2013 at 14:00 – 15:30

**Symposium Session:** Footwear

**Presenter:** Mr Sathish Paul

**“LOOKING BEYOND THE HORIZON” – THE LEPROSY MISSION TRUST INDIA MICRO CELLULAR RUBBER UNIT**

S. K. Paul 1,*, T. Edward 2, T. Mendis 3

1Prevention of Impairment & Disability Coordinator, The Leprosy Mission Trust India, Delhi, India 2MCR Unit Manager, The Leprosy Mission Trust India, Vizianagaram, Sustainable Livelihoods, The Leprosy Mission Trust India, Delhi, India

**Introduction:** The Micro Cellular Rubber (MCR) unit was established in Vizianagaram, Andhra Pradesh in India by The Leprosy Mission Trust India (TLMTI) to cater to the needs of Leprosy affected patients with neuropathic feet within India and to countries nearby India. The MCR Unit till date has provided over a million pairs of MCR insoles to all with anesthetic feet and still continues to do so.

The MCR unit produces quality MCR sheets with a hardness of 15” Shore A, which is optimum for distributing pressure and thereby prevent pressure points and thus avoid ulcers. Natural Rubber along with several other chemicals are used in optimum quantities in the manufacture of MCR. The unique manufacturing process gives MCR the ability to spring back to original shape when pressure is released while walking.

**Methods:** The larger size (24” X 20”) coloured MCR sheets with 10mm thickness has become an ideal rubber to prevent stigma for deformed anesthetic feet. Association and constant interaction with various shoe and footwear companies have led to experimentation and development of newer designs in MCR sandals. High quality and standards of the MCR insoles are maintained through periodic standardised quality tests carried out both within and outside the organisation.

**Results:** Although the initial purpose of the MCR unit was to cater to the needs of Leprosy affected people, in course of time, various Orthotic & Prosthetic centres realized the value and have started using MCR in their products, especially for Diabetic foot care. Since patients use and prefer protective MCR footwear to prevent ulcers, protect and cover their anesthetic and deformed feet, it is essential for MCR production units to constantly upgrade and develop newer designs and give the patients and opportunity to choose. At present TLM uses 70% of its annual MCR production and the rest is used by other NGOs and Orthotic centers.

**Conclusion:** With time there has been a rapid change and development in the design and manufacture of footwear, however there has been no alternative to MCR footwear. The constant strive of introducing and making use of MCR in their products, especially for Diabetic foot care. Since patients use and prefer protective MCR footwear to prevent ulcers, protect and cover their anesthetic and deformed feet, it is essential for MCR production units to constantly upgrade and develop newer designs and give the patients and opportunity to choose. At present TLM uses 70% of its annual MCR production and the rest is used by other NGOs and Orthotic centers.
O-062
Presentation Time: Thursday 17/09/2013 at 14:00 – 15:30
Symposium Session: Leprosy and NTDs
Presenter: Ms Shetu S/Fada

ENSURING THAT INDIVIDUALS AFFECTED BY NEGLECTED TROPICAL DISEASES ARE CONSIDERED EQUAL PARTNERS IN TRANSLATING THE LONDON DECLARATION INTO ACTION: A PILOT PROJECT

S. A. S/Fada 1; 2

1IDEA Nigeria, 2Tuberculosis and Leprosy Supervisor, Gusau Local Government, Gusau, Nigeria

Introduction: Since leprosy has been classified as a Neglected Tropical Disease (NTD), discussions are occurring regarding the similarities and differences between leprosy and other NTDs. At the meeting held in Washington, D.C. from November 16-18, 2012, it was stated that individuals personally affected by these NTDs must be partners in the global effort to translate the London Declaration into action, with the goal of eliminating or controlling ten of the NTDs by the end of the decade. Experience with leprosy has shown that it is essential to consider the social aspects of the disease if elimination is to be achieved.

Methods: Immediately after the meeting in Washington, D.C., a pilot project was developed to interview individuals affected by NTDs in different countries where IDEA has a strong presence. Interviews are being conducted by individuals who have personally overcome the challenges of leprosy and have a great deal of experience with human rights, advocacy, and stigma assessment and reduction.

Results: In Nigeria, a pilot project to conduct in-depth interviews with 20-30 people with trachoma, guinea worm and soil-transmitted diseases was developed. Individuals with these diseases are being identified and asked about their overall situation but, in particular, whether they have faced stigma and discrimination and, if so, how they have responded. They are also being asked about the presence of advocacy and support groups established by the people themselves. At the same time, when appropriate, they are being given information on how people who have had leprosy are dealing with discrimination and also creating support systems, locally, nationally, and internationally. Results of these interviews and conclusions and recommendations will be summarized for presentation at the Congress.

Conclusion: Despite the fact that the results of these initial interviews won’t be available for a few months since the project was only developed after the NTD Conference in Washington, D.C., it is not only the actual answers to the questions that constitute the “results”. It is the fact that individuals affected by one NTD (leprosy) are using their experience to assist in the process of helping to identify and address the social issues affecting individuals with other NTDs. It is estimated that 1.4 billion people worldwide are affected by NTDs, most of whom are among the world’s “poorest” citizens. The experience of leprosy has shown that the potential contribution of these individuals is often dismissed and it is essential that we not let out of the process but included as active participants. “Nothing about us without us.” The pilot project in Nigeria is laying the foundation for future involvement. In addition, it is beginning the process of creating a network of support among individuals who are personally affected by NTDs to ensure that having an NTD does not result in neglect, stigma, discrimination or the denial of their basic rights.

O-063
Presentation Time: Thursday 17/09/2013 at 14:00 – 15:30
Symposium Session: Leprosy and NTDs
Presenter: Lucrecia Acosta

LEISHMANIA SPP/MYCOBERIUM LEPRAE COINFECTION IN CHOLUTECA (HONDURAS) AND CHINANDENGA (NICARAGUA).

L. Acosta 1; N. Caballero 1; J. Stanford 1; L. Fuentes 1; F. J. Bornay-Linares 1; H. Donghue 1; J. R. Gómez 1; R. Torres 1

1Laboratorio, Asociación Fontilles, Alicante, Spain, 2Asociación Desarrollo de los Pueblos, Managua, Nicaragua, 3Universidad de College of London, London, United Kingdom, 4Head of leprosy Program, Managua, Nicaragua, 5Parasitology, University Miguel Hernández de Elche, 6Asociación Fontilles, Alicante, Spain

Introduction: The aim of the study is to identify the etiological agent present in skin lesions suspicious of leprosy or Leishmania in some individuals of the populations of Choluteca (Honduras) and Chinandega (Nicaragua) and potential implications for their household members.

Methods: 35 biopsies /31 individuals from skin lesions (erythematous macules), 18 post biopsy swabs from the biopsy excision/16 individuals and 99 nasal swabs/98 individuals were obtained from cases suggestive of leprosy or Leishmania. All samples were analyzed by the Polymerase Chain Reaction (PCR) for the detection of specific genus/specie DNA of Leishmania spp. (ITS 1 gene target) and Mycobacterium leprae (groEL and RLEP gen target).

Results: A total of 118 individuals were included in the study. Their ages varied between 6 and 83 years, mean age: 30 years; 83 females and 28 males. Forty seven were from Honduras and sixty four from Nicaragua. They all presented skin lesions compatible with leprosy or Leishmania or were contacts of these cases; 5/35 of the skin biopsies were positive using primers that amplify a specific fragment of the groEL gene and B for the RLEP repetitive sequence. Leishmania spp. DNA was detected in 24/35 biopsies. All Leishmania PCR + samples were digested with restriction enzyme Hae III and Leishmania infantum was identified in all the samples. DNA of both species was detected in 3 samples. Two of the 18 post biopsy swabs were positive for the M. leprae RLEP target and all negative for the groEL gene. The post biopsy swabs and corresponding biopsies results presented 100% correlation. Leishmania spp. DNA was amplified in 13 swabs/11 patients and the species detected was L. infantum and correlation with the biospies was 62.5%. The post biopsy swabs were DNA Leishmania positive in 3 biopsy negative samples and 3 DNA positive biopsy were post biopsy swab negative. DNA of both species was detected in 1 biopsy and was 100%, concordant with the biopsy result. Ninety one nasal swabs obtained from 98 individuals were negative for PCR amplification of the gene groEL but 4 were positive for the RLEP M. leprae target, two without any other positive sample and two already with previous positive samples (skin biopsy and post biopsy swab). Leishmania spp. DNA was detected in 1 nasal swab which correlated with one of the 3 positive post biopsy swabs and skin biopsy negative. M. leprae DNA was detected in 9/11 individuals and Leishmania infantum DNA in 25/111.

Conclusion: The presence of unspecified skin lesions in areas where leprosy and Leishmania are endemic emphasizes the need of a correct diagnosis. Prospective studies that correlate the presence of the etiological agent with the clinical evolution of the lesion are necessary for the implementation of the proper treatment and clinical evolution.

O-064
Presentation Time: Tuesday 17/09/2013 at 14:00 – 15:30
Symposium Session: Leprosy and NTDs
Presenter: Rajni Singh

“IMPACT OF MORBIDITY CARE MANAGEMENT IN ELEPHANTIASIS (LYMPHATIC FARIASISIS) IN FIVE DISTRICTS OF BIHAR”

R. K. Singh 1; A. Singh 1, G. C. Srivastava 1; S. K. Mishra 1

1NGO, LEPRA Society, Patna, India

Introduction: Lymphatic Filariasis, known as Elephantiasis, puts at risk more than a billion people in more than 80 countries. Over 120 million have already been affected by it, over 40 million of them are seriously incapacitated and disfigured by the disease. In its most obvious manifestations, lymphatic filariasis causes enlargement of the entire leg or arm, the genitals, vulva and breasts. In endemic communities, 0-50% of men and up to 10% of women can be affected. The psychological and social stigma associated with these aspects of the disease is immense. In addition, even more common than the overt abnormalities is hidden, internal damage to the kidneys and lymphatic system caused by the filariae. Lymphoedema is the main problem in filariasis. It mostly worsens due to neglect in the initial treatment. Once lymphoedema develops, it cannot revert to normal condition after certain stage. But encouragingly, it also does not deteriorate if regular self care is adopted. A deranged lymphatic system lowers the resistance to infection. If it is infected repeatedly the condition worsens and it becomes a source of constant suffering. Hygiene of the part prevents infection by fungus and bacteria. If regular care is taken at home acute attacks are prevented to a great extent. Care of an affected part needs to be taken almost throughout life often assisted by family and community.

This study was designed to measure the outcome and impact of morbidity care in rural setup of Bihar.

Methods: A programme for community home based care was designed for enticing a person’s either from family, friends or community, apart from the LF sufferer, to assist and monitor the home based care. 150 (95 female and 55 Male)elephantiasis patients from 30 villages were selected of four districts of Bihar has been selected in 2009. 109 case were between the age group of 30 to 45 year. The key components of this programme was the self-care with Daily Inspection, Washing with soap, drying with cotton cloth, exercise (Active and passive), massage, Elevation, Protective footwear. Initial assessments of each patient were done with General Information, Treatment history, Disability details (Entry point, acute attack, disability grading etc.) in structured format. Periodically (Every three months) assessments were carried out. Self-care training has been given to patients and their family member.

Results: After three year data were analyzed and finding are very encouraging. Out of 150 patients 148 are doing regular self-care practices, which they have, learn in training. This was notice that entry point healed up to 76.7 %, acute attack has been reduced by 91.2%. Reduction of swelling and the species detected was L. infantum and correlation with the biospies was 62.5%. The post biopsy swabs were DNA Leishmania positive in 3 biopsy negative samples and 3 DNA positive biopsy were post biopsy swab negative. DNA of both species was detected in 1 biopsy and was 100%, concordant with the biopsy result. Ninety one nasal swabs obtained from 98 individuals were negative for PCR amplification of the gene groEL but 4 were positive for the RLEP M. leprae target, two without any other positive sample and two already with previous positive samples (skin biopsy and post biopsy swab). Leishmania spp. DNA was detected in 1 nasal swab which correlated with one of the 3 positive post biopsy swabs and skin biopsy negative. M. leprae DNA was detected in 9/11 individuals and Leishmania infantum DNA in 25/111.

Conclusion: The presence of unspecified skin lesions in areas where leprosy and Leishmania are endemic emphasizes the need of a correct diagnosis. Prospective studies that correlate the presence of the etiological agent with the clinical evolution of the lesion are necessary for the implementation of the proper treatment and clinical evolution.

16th – 19th September 2013 • Brussels

PRESENTATIONS

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INFECTIOUS CO-MORBIDITIES IN HANSEN’S DISEASE (HD) PATIENTS IN THE US: IMPLICATIONS FOR TREATMENT.

W. Ooi 1, M. Bilodeau 1, S. Burns 1, D. Gannon 1, J. Gawoski 1, S. Moschella 1

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Introduction: In the US, HD occurs predominantly in immigrants in whom asymptomatic infections acquired in their countries of origin may co-exist. Commonly used immunosuppressive therapies in the treatment of HD, such as steroids may reactivate or exacerbate these infections. We reviewed the patients treated in our clinic over a six year period between 2007 and 2012, who were screened for latent strongyloidiasis, Chagas disease, HIV, hepatitis B, and tuberculosis. The incidence of complications correlated with immunosuppression by steroids and other drugs.

Methods: 120 patients from 20 countries were reviewed, 60 were from Brazil. Their median age was 50 years; 78% were male. Most latent infections were diagnosed by serology; latent tuberculosis by tuberculin testing; Medication history and incidence of complications were obtained prospectively and by chart review.

Results: 31 of 67 patients tested were positive for strongyloidiasis, 0/18 for Chagas disease, 0/52 for HIV, 9/80 for hepatitis B, and 6/39 had positive PPD tests. Two patients infected with HIV, one coinfected with Mycobacterium tuberculosis, were referred for consultation, but are not included in the study population. 80 patients were prescribed steroids and two were given TNF inhibitors. Of those given steroids, 92.8% received them for >6 months, and 50% for >2 years. One patient, later found to have hepatitis B, was treated with prednisone for erythema nodosum leprosum and developed fatal hepatic necrosis. Subsequent patients with significant hepatitis B viral load (48) received antiviral medications to avoid complications of reactivation. Patients with positive strongyloides antibody were treated with ivermectin; of these, 54.8% (17/31) received steroid therapy. 53 patients had never been tested for strongyloidiasis, of whom 43.4% (23/53) also received steroid therapy. None developed disseminated strongyloidiasis. All patients received rifampin, an effective antituberculosis drug, as part of their HD therapy. None reactivated their tuberculosis.

Conclusion: HIV infection, Chagas disease, hepatitis B infection, strongyloidiasis and latent tuberculosis are co-infections that need to be considered when treating immigrants with HD in the US. The frequent use of immunosuppressants such as corticosteroids may cause reactivation or exacerbation of potentially fatal dormant diseases. Significant percentages of our patients were co-infected with Strongyloides stercoralis and hepatitis B, requiring pre-emptive therapy or prophylaxis during immunosuppression. Similar considerations will apply to patients seen in HD clinics elsewhere, with possible modification depending on country of origin.

LEPROSY HIV CO-INFECTION OBSERVATIONAL STUDY IN ETHIOPIA

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Introduction: There is little prospective data on the clinical and immunological features of patients with leprosy HIV co-infection. We report the first study from Africa.

Methods: Patients were recruited from April 2010 onwards and HIV testing was offered to all patients with new leprosy. Patients with positive HIV test were matched with controls for age, sex, type of leprosy and reactive state. They were followed for three years with monthly clinical reviews and 6 monthly CD4 and viral loads measurements where appropriate. We recorded the evolution of their skin lesions and progression of nerve damage and the response of the reactivational skin lesions and peripheral nerve inflammation to steroid treatment. Immuno-staining were also conducted. Peripheral Blood Mononuclear Cells (PBMC) from Blood samples of confirmed HD co-infected and non-HIV leprosy patients were isolated and stimulated with M. leprae Whole Cell Sonicate (WCS) and PHA in six days culture. IFN γ responses were measured by ELISA. RNA from blood samples collected in paxgene tubes were isolated and subjected to multiple ligation probe amplification (MLPA) and data analysis of this genetic profiling is in progress.

Results: 23 HIV positive patients and 20 matched controls (HIV negative) have been recruited. None presented with leprosy IRIS after starting ART. 23 HIV positive patients and 20 matched controls (HIV negative) have been recruited. One patient presented with leprosy IRIS after starting ART. The Ridley-Jopling classification in the co-infected group shows: 15 BT, 1 BB, 1 BL, 4 LL and two no leprosy cases. On presentation 20 patients were in reaction (3 had ELM, 16 had RR and one had neuritis). The one co-infected patient that presented with no reaction developed ELM 5 months into her MDT treatment. Analysis of co-morbidities will be presented as well on analysis on frequency, severity and response to treatment of reactions. Most of the HIV co-infected leprosy patients were on ART during sampling. The responses to PHA in both HIV co-infected and non-HIV leprosy patients (all types of leprosy) were found comparable however relatively low responses to M. leprae WCS was observed in TT/OT co-infected patients. The BL/LL patients in both groups responded poorly to M. leprae WCS as M.leprae specific cell mediated immunity in lepromatous leprosy patients in general is low.

Conclusion: All types of leprosy were seen in the co-infected group, with high numbers of BT cases despite HIV infection. There were high rates of reactions, with more steroid resistant reaction in the co-infected group. Further analysis of immune responses is needed in more HIV leprosy co infected patients representing all types of leprosy.

Clinical Study Funded by: GLRA
Epidemiological aspects of type 2 reactions in leprosy: A study at a referral hospital in Andhra Pradesh, South India

K. R. Adiraju 1,*, S. Jonnalagadda 2, and Hemanta Kumar Kar 3

1Clinical & Epidemiology, 2Director, LEPRA India - Blue Peter Public Health and Research Centre, 3Chief Executive Officer, LEPRA India, Hyderabad, India

Introduction: LEPRA India started supporting National Leprosy Eradication Programme (NLEP) from 1989, with services ranging from MDT to rehabilitation. With Hyderabad as headquarters, it has projects in 4 states and a research arm called Blue Peter Public Health & Research Centre (BPHRC) since the year 2000. The centre has a Clinical & Epidemiology division for leprosy.

Method: A retrospective chart review was performed on 1033 leprosy patients at Anandaban Hospital in Nepal. ENL patients attending Anandaban Hospital in Nepal.

Results: Of the 629 diagnosed with leprosy at this center, MB were 398 (63.3%) compared to 231 (36.7%) BL. THALIDOMIDE AND PREDNISOLONE PLUS CLOFAZAMINE (THALIDOMIDE AND PREDNISOLONE ALONE, THALIDOMIDE ALONE, PREDNISOLONE PLUS CLOFAZAMINE) was administered at the time of registration with 85 episodes ranging from 1 – 10 with an average of 3.5 episodes. Of the 20 who had reaction during and after MDT, the percutaneous index was drawn. The observation was that, 8 (40%) of them during the first 3 months, 4 (20%) during the next 3 months, 2 (10%) after 3 more months and 1 (5%) between 12 – 18 months and one (5%) after 2 years of MDT. As expected, all the 20 had a type 2 reaction at the time of registration with 85 episodes ranging from 1 – 10 with an average of 3.5 episodes. Of the 20 who had reaction during and after MDT,(i) the percutaneous index was drawn. The observation was that, 8 (40%) of them during the first 3 months, 4 (20%) during the next 3 months, 2 (10%) after 3 more months and 1 (5%) between 12 – 18 months and one (5%) after 2 years of MDT. All these cases had BI more than 4 at the time of diagnosis.

Conclusion: This study reveals that about 11% of MB cases present with ENL reactions. Average number of episodes was 4 per case with higher (4.2) in treated and lower (3.4) episodes before treatment. ENL was cause for health check-up in 50% of cases; 95% of ENL found in high BI 4+ and above. Incidence of ENL is higher (40%) in 1st 3 months after MDT and rare after two years. There is direct association with BI.

Comparative efficacy of four treatment regimens in type 2 leprosy reactions (Prednisolone alone, Thalidomide alone, Prednisolone plus Thalidomide and Prednisolone plus Clofazamine)

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Introduction: Early detection and prompt optimal treatment in T2R can significantly reduce complications. This study was conducted to assess the comparative efficacy of Prednisolone (P) alone or thalidomide (T) alone and Prednisolone plus Clofazamine (P+T) for the first attack of T2R.

Methods: This was an open prospective single centre study involving LL.BL patients with T2R. Enrolled patients were randomized into four treatment groups. Two single drug regimens (either P or T) were used for first episodes of T2R. Combination regimens (P + T in group 3) and (P + Clofazamine (P + C) in group 4) were administered for chronic / recurrent T2R. Prednisolone was administered at 1 mg/kg/day for 2 days and tapered over 20 weeks. Thalidomide was started at dose of 400 mg/day and tapered over 20 weeks. Clofazamine was started at 300 mg/day for 12 weeks and then tapered over 20 weeks. Adverse effects were analyzed for all cases in group of relapse/reactivation or increase in severity of T2R.

Results: Sixty patients who completed the study were analyzed. There were 17 patients each in Group 1 and 3, 16 each in Group 2 and 4. Fifty nine (89.3%) patients developed T2R during MDT whereas 7 (10.61%) had T2R after MDT. Prednisolone dose as per protocol was 4.2 g. However, most patients did not require steroid increments but only a longer duration of Prednisolone at a dose of 30-40 mg/day raising the total dose to >30 g. Prednisolone was found in 92% patients required a year or more of treatment, often as an inpatient, to resolve one episode. Although high bone marrow suppression adverse effects were observed more frequently with T, this was not required a year or more of treatment, often as an inpatient, to resolve one episode.

Conclusion: Current treatment options for ENL remain inadequate as the majority of ENL patients required a year or more of treatment, often as an inpatient, to resolve one episode. Although high bone marrow suppression adverse effects were observed more frequently with T, this was not required a year or more of treatment, often as an inpatient, to resolve one episode.
THE FEATURES OF ERYTHEMA NODOSUM LEPROSUM (ENL) IN THE INFIR COHORT

S. L. Walker 1,*, P. G. Nicholls 2, D. N. Lockwood 1 and the INFIR Cohort Study

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Introduction: ENL is a debilitating multisystem disorder characterised by fever, malaise and painful erythematous cutaneous nodules. ENL may occur before, during or after completion of multi-drug therapy (MDT) and is often recurrent or chronic in nature. There are few prospective data concerning the features of ENL and treatment using prednisolone.

Methods: A multicentre cohort study of newly diagnosed multibacillary leprosy patients was conducted in northern India. Individuals with a bacterial index (BI) of 3 or more received 24 months of MDT. Follow-up was monthly for 12 months and then every two months in the second year. Study subjects were assessed clinically and with detailed nerve function assessment.

Results: 303 people were enrolled. 105 had borderline lepromatous (BL) leprosy or lepromatous leprosy (LL). 19 (6.3%) individuals were diagnosed with ENL. 6 (32%) people had ENL at enrolment and 13 (68%) developed it subsequently. The median age of individuals was 30 years and 72% were male. 18 of the 19 individuals had LL leprosy or LL. The proportion of individuals who had LL was significantly greater in the group who had ENL compared with those who did not develop ENL. The mean BI of the group with ENL was 3.1. Oedema was present in 47% of individuals with ENL while a documented fever >37.5°C was present in 11%. Of individuals who presented with ENL at enrolment 83% had more sensory impairment and 33% motor impairment that had been present for more than six months. 21% of individuals with ENL experienced nerve pain. 5% and 21% of patients with ENL had warm or cold sensation loss respectively. 53% had vibration perception impairment, 21% motor conduction impairment and 11% sensory nerve conduction impairment.

Conclusion: All 19 patients with ENL were treated with prednisolone. 16 individuals took prednisolone for at least 12 weeks during the study period. The median number of times that prednisolone was initiated or the dose increased in these individuals was 3. Six of these 16 individuals had a single episode of ENL. All of them received prednisolone for between 16 and 28 weeks. Individuals with multiple episodes of ENL received corticosteroids for between 44 and 104 weeks.

Conclusion: Thalidomide and prednisolone are both efficacious for first episode of T2R but Thalidomide is better. However, Prednisolone alone has high recurrence rate, require additional dose to control recurrences and has more adverse effects. Combination of P + T / Ciz are both efficacious for recurrent chronic T2R but, P+T is better when RSS score is compared at 20 weeks. Also recurrence is more with P + Ciz.

O-071
Presentation Time: Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session: ENL Reaction 1
Presenter: Stephen Walker

O-072
Presentation Time: Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session: History of Leprosy 1
Presenter: Jo Robertson

THE BEGINNING OF INTERNATIONAL EFFORTS TO CONTROL LEPROSY

J. Robertson 1

1English, Media Studies and Art History, University of Old, Brisbane, Australia

Introduction: This paper recounts the efforts, precipitated by a delegation from the newly formed nation of India, to bring leprosy to the attention of the Second World Health Assembly held in 1949.

Methods: This paper draws mainly on archival documentary research, on WHO archives in Geneva and also on the research gathered during my work on the International Leprosy Association’s Global Project on the History of Leprosy.

Results: The alliance of interests that brought leprosy to the notice of the World Health Assembly for consideration relied upon a two-pronged approach. Firstly, the International Leprosy Association (ILA), formed in 1932, at the time of the League of Nations investigation, ensured that it was one of the earliest non-governmental organisations to enter into an affiliation with the WHO.

Conclusion: While the Indian delegation had won a significant attention to the agenda of the WHO by obtaining resolution for specific activities, something that it would hold the Assembly and the Organisation to, it would quickly become increasingly and frustratingly apparent that even if the will to carry out work against leprosy was expressed by the WHO, there was no immediate way for this to happen. WHO, dependent as it was for funds from member states, was labouring under stringent financial constraints, so a budget for work against leprosy could not be taken for granted.

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O-073
Presentation Time: Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session: History of Leprosy 1
Presenter: Magnus Vollset

FOUR PILLARS OF COLLABORATION: ORGANIZING INTERNATIONAL LEPROSY RESEARCH, 1897-1933

M. Vollset 1

1AHKR, University of Bergen, Bergen, Norway

Introduction: Paris, December 31, 1926: The French medical professor Eduardo Jeanseml and the Brazilian leprologist Herculides César de Souza-Araújo raised their glasses to celebrate the founding of the “International Society of Leprology”. With prominent collaborators from around the world, the organization was set to coordinate international leprosy research, establish international research centers, prepare global science-based advice on leprosy prevention, and resume publication of the medical journal Lepra Bibliotheca Internationalis (1900-1914). However, the Society never had a single meeting, and of their journal only a draft front page saw the light of day. Nevertheless, the effort was not in vain.

When the International Leprosy Association (ILA) was founded at a two-week meeting in Manila in 1931, both the organizational structure and most of the initial leaders were adapted from the failed Society. Likewise, the International Journal of Leprosy (1933-2005) took its cue from Lepra Bibliotheca Internationalis.

The ILA and the medical journal make up two of what I characterize as the four pillars for international collaboration regarding leprosy research for the next seven decades. The third and fourth pillar were the League of Nations’ Leprosy Commission (whose work was continued by the
LEPROSY, DEMOCRACY AND CITIZENSHIP IN KOREA UNDER AMERICAN OCCUPATION (1945 – 1948)

J. S. H. Kim 1

1 Asian Languages and Cultures, UCLA, Los Angeles, United States

Introduction: This paper explores the leprosy control program carried out in Korea during the American military government period (1945 – 1948). Following the end of Japanese colonization of Korea (1910 – 1945), the United States occupied Korea from the south of the 38th parallel line and the northern part of Korea above the 38th parallel line was taken up by the Soviet Union. And during the three years that the American military government governed South Korea, ‘decolonization’ and nation – building programs were carried out throughout the newly liberated nation – state. Public health and sanitations were areas that were especially targeted by the newly incoming American military government. Leprosy, in particular, was one such public health project that the American Occupation paid particular attention. As disease that possessed politically symbolic values, ‘controlling’ leprosy was means for the Occupation Government to showcase the successful decolonization and establishment of modern nation – state in Korea.

The argument of this paper is that self – government (chach’ihoe/ chach’ije) carried out at the Korean leprosy body came to possess the symbolic values of democracy and modern nationhood. By showing how the relationship between the government and the national sanitarium and regional community, and their relationship between the government and the national sanitarium in their region, varied greatly. That difference, therefore, had a great influence upon sufferers in their region.

Conclusion: Mission work for Hansen’s sufferers was a global, simultaneous phenomenon, but its impact in Japan has been ignored. Missionary work in Japan was developed using different strategies in each region yet it was also guided by common medical knowledge and objectives. This research takes a comparative historical approach to the missions, which provides new perspectives of social history of Japan’s Hansen’s disease sufferers rather than the political history of the disease. It also enables a comparative view that situates Japan within a broad, global history of mission work for Hansen’s disease.
achieve this. Nevertheless the regimes were different. The indigenous population was different, and the ideologies of the two missions was different. As a result the Lao si Momo regime was much more loose than the one in Hoeta Salem. In my lecture I will go into the origin, further history and ideology of both leprosaria; the ideas on leprosy of the ones inhabiting the leprosaria. Furthermore, what was the outcome of a leprosarium ruled by Christians missionaries and doctors but inhabited by Muslim patients. The inquiry into these leprosaria is part of a more extensive inquiry into leprosy in Dutch East India 1814-1941, which in its turn is part of a major research project called ‘leprosy and Empire, which obtained three year funding of NWO (Dutch Scientific Research).

Methods: Literature research, archival research, research into original publications

Results: Public health, even in a colonial setting, is a result of a translation of policy and ideology fitting local circumstances and local ideas on health. If not, effectiveness will probably be non-existent.

Conclusion: The different regimes in the two Dutch leprosaria were the result of a translation of public health policy by different ideologies, although both Protestant, people in, however close to each other, different surroundings.

O-077
Presentation Time:  Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session:  Microbiology
Presenter:  Nawal Bahia El Idrissi

COMPLEMENT INHIBITION IS NEUROPROTECTIVE IN A MOUSE MODEL OF LEPROSY

N. Bahia El Idrissi 1,*, P. Rosas 2, K. Flutter 1, D. Troost 1, P. Morgan 1, P. Das 1, F. Baas 1, V. Ramaglia 1

1Genome analysis, Academic medical center, Amsterdam, Netherlands; 2Lauro Souza Lima Institute, Bauro-SP, Brazil

Introduction: Leprosy is a chronic infectious disease caused by Mycobacterium (M.) leprae. In most patients, M. leprae affects nerves, causing deformities. The membrane attack complex (MAC), which is part of the innate immune system, is deposited in nerve and skin lesions of these patients. We previously showed that MAC exacerbates degeneration and impairs recovery of mechanically injured peripheral nerves whereas inhibition is protective. Here we tested whether MAC inhibition is protective in a mouse model of leprosy.

Methods: Nerve damage by M. leprae was mimicked in mice by intraneural injections of either M. leprae homogenate, cell wall or PBS as control. To determine the role of MAC in the nerve damage caused by M. leprae homogenate or fractions, mice were pre-treated with a C or an anti-iC3b anti-complement, which blocks C6 protein synthesis and thereby blocks MAC formation, for 4 days prior to intraneural injection. To test which fraction of M. leprae activates complement, we performed ELISA for MAC using M. leprae homogenate or cell membrane or the inner cell wall component iporobinobaminan (LAM) or the outer cell wall component phenolic glycolipid 1 (PGL-1) as coating.

Results: Intraneural injections of either M. leprae homogenate or cell wall, but PBS induced MAC deposition and pathological changes at 3 days post-injection. Pre-treatment of mice with C or anti-iC3b oligonucleotide inhibited MAC deposition in the nerve and prevented nerve damage as shown by intact myelin and axonal morphology, low number of macrophages, intact S100 expression - a marker of mature myelinating Schwann cells. All M. leprae components, but PGL-1, induced MAC deposition in vitro.

Conclusion: We show that M. leprae homogenate and its fractions activate C and cause nerve damage in a mouse model of leprosy whereas MAC inhibition is neuroprotective. The present study shows that studying the interaction between the M. leprae components and nerve in a mouse model may lead to the identification of targets for the development of a novel therapy.

O-078
Presentation Time:  Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session:  Microbiology
Presenter:  Martha Guerrero

NOVEL METHODOLOGY FOR ASSESSING THE VIABILITY OF MYCOBACTERIUM LEPRAE IN SAMPLES FROM MULTIBACILLARY PATIENTS TREATED WITH MDT-WHO IN THE FEDERICO LLERAS ACOSTA DERMATOLOGY CENTER IN BOGOTA COLOMBIA

M. I. Guerrero 1,*, C. L. Colorado 1, S. Mudi 1,2, C. I. Leon 1

1DOCENCIA E INVESTIGACION, CENTRO DERMATOLGICO FEDERICO LLERAS ACOSTA, BOGOTA D.C., Colombia

Introduction: Mycobacterium leprae is characterized for his inability to be cultured in vitro, which is the biggest obstacle to research in leprosy, especially for measuring the effectiveness of chemotherapeutic schemes. The development of fluorochromes that allow targeting differently viable and nonviable bacteria, coupled with the availability of automated tools as highly sensitive and specific flow cytometry, have brought to determine the bactericidal action of anti-leprosy schemes, which to date, had not been possible to carry them out directly in samples of treated patients. Therefore, we wanted to quantify for the first time, the viability of Mycobacterium leprae present in samples of lymph from multibacillary patients treated with 12 and 24 doses of MDT, in the Federico Lleras Acosta Dermatology Center, between 2008 and 2009, using the commercial kit LIVE/DEAD BacLight™ combined with flow cytometry.

Methods: We carried out an analytical observational cross-sectional study to quantify the viability of M. leprae in samples from treated patients with multibacillary TMD-WHO. We included 21 patients who received 12 doses of TMD and 30 patients who received 24 doses of TMD regularly. As viability control we included 17 patients. From intestinal fluid samples, the IB was quantified according to the scale Ridley. The viability of M. leprae was determined using the commercial kit LIVE/DEAD BacLight™ combined with flow cytometry, after standardization of all necessary parameters (number of events, counting time, concentration of fluorophores, sample dilution) for adjustment and instrument compensation and to obtain the cut-point to distinguish nonviable versus viable populations.

Results: In the group of 12 doses, all patients remained IB positive. By this determination of viability was found that 85.7% of patients continued with viable bacilli and 14.3% of them had no viable bacilli, although their smear was continued positive. In the group of 24 doses, 60% of the patients continued with positive IB after being treated for 24 months. By this determination of viability was found that 56.7% of patients treated for 24 months had viable bacilli and 43.3% had nonviable bacilli, although they continue their smear positive.

The viability after 12 and 24 WHO-TMD doses by the mean difference analysis showed that the two groups of patients end up with a different bacterial population viability, favoring treatment of 24 doses. The t-test for means difference with p<0.05, established a significant difference.

Conclusion: The findings of this study indicate that quantify the viability of the bacilli directly in patient samples is a more objective measure that the IB to assess the effectiveness of the TMD. It was evident that with the methodology described herein, using the M. leprae viability detection, we can track patients with TMD to take objective decisions about the management, treatment completion and schema changes. This tool can be implemented in research or reference centers with technological facilities.

O-079
Presentation Time:  Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session:  Microbiology
Presenter:  Dawkendra Chauhan

EXPRESSION ANALYSIS OF GENES RELATED TO METABOLISM AND VIRULENCE OF MYCOBACTERIUM LEPRAE DURING INFECTION IN HUMAN HOST BY MICROARRAY

D. S. Chauhan 1,*, R. Sharma 2, K. Katoh 1, V. M. Katoh 1

1Microbiology and Molecular Biology, National JALMA Institute for Leprosy and Other Mycobacterial Diseases, Agra, India

Introduction: The global prevalence of leprosy has been declined in recent years due to the implementation of an effective multidrug regimen; however, large numbers of new cases are still being reported in various countries of the world including India. This can partially be attributed to the lack of diagnostic markers for different clinical states of the disease and the consequent implementation of differential, optimal drug therapeutic strategies. Knowledge about the expression profile of Mycobacterium leprae genes actively transcribing during the course of infection in human is requisite to better understand and manage M. leprae’s abilities to survive and produce disease in humans.

Methods: To study the expression of M. leprae genes transcribed during the active infection in humans, a partial genomic DNA Chip for selected genes (n=60; genes encoding metabolic checkpoints of TCA cycle, lipid biosynthesis, nucleotide biosynthesis and genes hypothetically related to virulence) of M. leprae has been indigenously developed (Indian Patent application No. 2006/DEL/2006 and 2005/DEL/2007). Results of microarray were further confirmed and compared across the disease spectrum by quantitative Real time RT-PCR and in-situ RT-PCR with gene specific primers.

Results: Out of 60 selected genes, eleven genes were found to be over-expressed (signal to noise ratio >2.4) compared to other genes in M. leprae inside of host during active infection. Of these 11 identified genes, 6 belong to metabolism (ML1363, ML1095C, ML0726C, ML0616, ML2230, ML1900) and 5 (ML0579, ML0383C, ML 1338, ML0774, ML2496C) were related to bacterial virulence. No such signals were detectable in RNA derived from healthy human skin specimens. These results were subsequently confirmed by Real-Time PCR and in-situ RT-PCR. Relative quantitative results show consistent over-expression of all eleven genes in TT, TB, BB, BL, LL as well as reaction cases of leprosy. acca (ML7026) and sYa (ML 1358) were found to be hyper-expressed during the reactions in leprosy patients.

Conclusion: In present study accA appeared as a useful molecular marker for monitoring the diseases and provided a clue for better understand mechanism of leprosy reactions. RT PCR targeting sYa appears to be more sensitive then 16S rRNA for detection of viable bacilli.
INTERACTION OF MYCOBACTERIUM LEPRAE WITH HUMAN AIRWAY EPITHELIAL CELL LINES: ADHESION, INVASION, SURVIVAL AND IDENTIFICATION OF POTENTIAL ADHESINS BY SURFACE PROTEOME ANALYSIS.

C. A. D. M. E. Matos E Silva 1,*, L. Danielvili 2, M. McNamara 3, M. B. P. Moreira 4, L. S. Rodrigues 1, R. Bidelli 1, F. Biel 1, A. V. Oliveira 1, P. S. Rosa 1, L. E. M. Bermudez 1, M. C. V. Pessolani 1, 8

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Introduction: The airways are considered the major port of entry of Mycobacterium leprae. Therefore, studies on the M. leprae interaction with epithelial cells are of great relevance to shed light on earlier events in M. leprae-host interaction.

Methods: We examined the in vitro interaction between M. leprae and two humans airways epithelial cell lines (the alveolar A549 cell line and the nasal septal cell line RPMI 2650) by confocal microscopy and electron microscopy. Also, we tested the capacity of the leprosy bacillus to interact with nasal primary epithelial cells obtained from patients with nasal polyposis. M. leprae intracellular viability in epithelial cells was determined by the LIVE/DEAD BacLight Bacterial Viability Kit. To further validate the in vitro findings, C57BL/6 mice were intranasally challenged with M. leprae to evaluate whether the bacteria can interact in vivo with airway epithelial cells. Finally, to uncover potential adhesin candidates relevant in M. leprae-epithelial cell interaction, we studied the surface proteome of nude mouse-derived M. leprae based on selective surface biotinization, streptavidin-affinity purification and shotgun mass spectrometry.

Results: Confocal and electron microscopy revealed that M. leprae can enter in both cell lineages and nasal primary epithelial cells, and that bacteria viability does not affect the invasion process. However, M. leprae showed higher capacity to bind and invade alveolar epithelial cells. M. leprae entry into epithelial cells was inhibited by cytochalasin and colchicine pre-treatments, indicating that M. leprae uptake in epithelial cells is actin/tubulin-dependent. Additionally, M. leprae was able to survive inside epithelial cells up to ten days, suggesting that epithelial cells can sustain bacteria viability. Moreover, delivery of M. leprae to the nasal septum of mice resulted in infection of macrophages and also epithelial cells in the lung tissue. Finally, 280 cell surface-exposed proteins were identified in our proteomics studies. Among these proteins, the histone-like protein (Hlp) and hemaglutinin binding heparin (HBHA), two major mycobacterial adhesins, were shown to be expressed on the M. leprae surface and to mediate bacterial attachment to epithelial cells.

Conclusion: Altogether, our data point to the potential of the epithelial airway mucosa as the primary site of M. leprae infection in humans. Thus, a greater understanding of the interaction between the leprosy bacillus and airway epithelial cells could contribute to the development of more effective preventive tools for leprosy control.

ORAL PRESENTATIONS

0-080
Presentation Time: Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session: Microbiology
Presenter: Flávio Lara

M. LEPRAE MODULATES GLUCOSE UPTAKE AND METABOLISM IN THE HOST CELL

R. C. Medeiros 1, K. G. Vasconcelos 1, A. B. R. Ferreira 1, P. S. Rosa 1, A. F. Teixeira 1, L. F. G. Souza 1, M. P. D. Oliveira 1, L. S. Rodrigues 1, M. C. V. Pessolani 1, E. N. Sarno 1, J. A. D. C. Nery 1, D. Esquenazi 1, M. G. Mosades 1, F. M. Oliveira 1, M. S. Pena 1, P. A. Lara 1, 8

1Pavilhão Hanseníase, Fundação Oswaldo Cruz, Rio de Janeiro, 2Departamento de Patologia, Instituto Lauro de Souza Lima, Bauru, 3Instituto de Bioquímica Médica, Universidade Federal do Rio de Janeiro, 4Instituto de Bioquímica Médica, Fundação Oswaldo Cruz, 5Faculdade de Farmácia, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil

Introduction: It is well described the importance of Schwann cell metabolism in the axonal homeostasis. Therefore, any changes in lactate release by Schwann cells, could generate axonal energy deprivation and loss of function. In the present work we measured glucose metabolic parameters in M. leprae infected Schwann cells and in peripheral blood mononuclear cells (PBMC) of patients.

Methods: We used STB814, a schwannoma cell line, as a model for in vitro infection by live M. leprae produced in nu/nu mice. These cells were also exposed to irradiated bacilli. Uptake of glucose was analyzed by the signal intensity of its fluorescent analog (2-NBDG). Lactate production was quantified by the generation of quinone imine, monitored at 550 nm. The activity of key enzymes for glucose metabolism, such as glucose 6-phosphate dehydrogenase (G6PD) and phosphofructokinase 1 (PFK) was also measured by the reduction of NADPH and oxidation of NADH, respectively at 340 nm. Mitochondria activity, such as oxygen consumption, complex I-III and IV activity was also determined in in vitro infected cells and in PBMC of patients.

Results: Our results demonstrated that M. leprae infected Schwann cells increase glucose uptake and G6PD activity, indicating an increase in cellular reduction potential (NADH). We also observe a decrease in lactate production and activity of PFK in cells infected or exposed to the pathogen. Glucose uptake increase does not follow the activity of PFK and lactate production, which can result in axonal energy deprivation. A drastic reduction in mitochondrial activity was also observed after in vitro infection and in patients PBMC.

Conclusion: In our in vitro infection model, a paradoxical reduction of both fermentation and oxidative pathways was observed. We believe that this phenomenon could be a collateral effect of a strong anabolic demand of glucose, in order to liberate carbon and NADH to lipid synthesis. More studies on the molecular mechanisms involved in the bacterial modulation of these pathways can help in the development of new therapeutic targets and the understanding of the neuronal pathogenesis of leprosy.

ORAL PRESENTATIONS

0-082
Presentation Time: Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session: Microbiology
Presenter: Marcia Moreira

MYCOBACTERIUM LEPRAE INDUCES CHOLESTEROL ACCUMULATION IN INFECTED MACROPHAGES BY UPREGULATING THE EXPRESSION OF LOW DENSITY LIPOPROTEIN RECEPTORS AND THE DE NOVO CHOLESTEROL SYNTHESIS PATHWAY

K. A. Matsos 1, M. P. Berredo 1, C. V. G. Oliveira 1, J. J. Amaral 1, D. F. Moura 1, L. C. M. Antunes 1, J. Han 1, P. S. Rosa 1, P. E. Almeida 1, E. N. Sarno 1, C. Borchers 1, B. Flint 1, G. C. Atella 1, P. T. Bozza 1, M. C. V. Pessolani 1

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Introduction: Across the leprosy spectrum, the lepromatous leprosy (LL) shown a classical hallmark that is the presence of collection of foamy macrophage cells characterized by high bacillary infection and lipid content. Recently, the origin and nature of the lipid molecules accumulated in Mycobacterium leprae (ML) infected cells has been explored; however the mechanisms that governs the ML-trigger host lipid accumulation and their potential as mycobacterial intracellular strategy in the leprosy disease remains poorly understood. Herein we report how ML infection influences the lipid status of infected macrophages.

Methods: Skin biopsies from LL and borderline tuberculoid patients (BT) were analyzed comparatively to understand the lipid metabolic pathways triggered in vivo by chronic infection. In addition, macrophages isolated from LL lesions were analyzed as an ex vivo model of long-term infected cells. To study early lipid modulation during ML infection, macrophages from lineage or derived from PBMC were used in in vitro studies. These models were used for the measurement of neutral lipids and the study of lipid pathways modulated by ML infection. Complex lipidomic profiles were obtained by HPTLC and DI-FT-ICR MS analysis pointing to cholesterol ester accumulation in infected macrophages. The multiple steps involved in cholesterol homeostasis control, including the expression of key transcriptional factors, enzymes and Low Density Lipoprotein (LDL) receptors were investigated by RT-PCR and/or western blotting.

Results: We showed that ML induces both the up and down regulations in LDL and HDL infected macrophages. Interestingly, we also showed lipid recruitment to ML-containing phagosomes. Notably, cholesterol metabolism impairment either through de novo synthesis inhibition or through capture blockade decreased intracellular bacterial survival.

Conclusion: These findings highlight the importance of the metabolic integration between host and bacteria to leprosy pathophysiology and open new avenues for novel therapeutic strategies to mycobacterial diseases.
O-083
Presentation Time: Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session: Epidemiological Surveillance
Presenter: Kumar Anil

PREVALENCE OF DISABILITY IN PREVIOUSLY UNDETECTED LEPROSY CASES: RESULTS OF A POPULATION SURVEY IN TWO STATES OF INDIA

A. Kumar 1,*, S. Husain 1

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Introduction: To assess the disability burden, in India, due to leprosy.

Methods: A survey was conducted using multistage cluster random sampling in 8 districts of India: 4 in U.P. (High endemic) and 4 in Haryana (low endemic) and 904334 persons were examined using physical examination. All the suspects by field staff were examined by PHC medical officers or district medical/leprosy officer to confirm diagnosis for treatment at nearby health facility. Prevalence per lakh is estimated and χ² test of significance was used to compare proportions.

Results: Survey suggested that prevalence of disability in Uttar Pradesh was 47.3 per 1 lakh population surveyed (95%CI:42.0-52.7) and varied from 83.2 (95%CI: 66.9-89.7) in Badaula district to 18.6 (13.1-24.2) in Mathura district. Similarly, prevalence of disability in Haryana was observed to be 16.8 per 1 lakh population surveyed (95%CI:13.6-20.1) and varied from 40.6(95%CI:26.3-54.9) in Kukashehra district to 2.0(1.5-2.5) in Mewat district.

The disability rate among new leprosy cases detected was found to be 17.7% in Haryana and 15.2% in Uttar Pradesh. Maximum disability was found in hands and feet together (51.3%).

The prevalence of disability appeared to have increased by age (Figure 1), touching zero level at young age of under 10 years and then slowly increased to maximum of 34.4% in ages beyond 60 years. The disability rate among males was 24.0(95% significantly higher (χ²=18.2, P<0.0001) than 7.0% among females, however, prevalence was not significantly different in rural comparing to urban areas (18.3% vs. 12.0%, χ²=2.3, P=0.13). In all, 31.9% female patients had disability. The Grade 2 disability alone among new leprosy cases was found to be much higher 10.7% (39/359) than 1.8% as reported in registered data of India 2008-09.

Conclusion: The study suggests that prevalence of disability per lakh population is found to be 31.9 (95% CI:27.7-36.3) in both states together.

O-084
Presentation Time: Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session: Epidemiological Surveillance
Presenter: Josiella Barreto

CLINICAL AND SEROLOGIC COHORT IN HYPERENDEMIC AREAS OF THE BRAZILIAN AMAZON REGION: HIGH RATE OF UNDIAGNOSED LEPROSY AND SUBCLINICAL INFECTION

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Introduction: Brazil has one of the highest annual case detection rates of leprosy in the world (17,650,000 inhabitants), and it is characterized by high-burden pockets in the North, Central-West and Northeast regions of the country. In highly endemic areas, the prevalence of undiagnosed leprosy in the general population can be up to six times higher than the registered prevalence. In several areas of the Brazilian Amazon Region, leprosy is hyperendemic among children under 15 years old, suggesting recent disease and active foci of transmission in those communities. Serology to detect antibodies against PGL-I has been used to identify individuals at a higher risk of contracting leprosy than the general public. Thus, a cohort study combining a clinical and serological survey has been carried out in hyperendemic municipalities in the North of Brazil.

Methods: An initial cross-sectional survey was carried out in 2009-2011 in 12 high endemic districts of the metropolitan area of Belém, Brazil.

Results: During the initial survey, sixty-three (4%) SC, with a mean age of 13.3 years and 134 (6.2%) HC groups were diagnosed with leprosy. APGL-1 was considered positive (Optical density > 0.295) in 777 (48.8%) SC and in 924 (43%) HC. Seroprevalence was significantly higher among girls, students from urban areas and students from public schools. Forty-five (71.4%) new cases detected among SC were classified as paucibacillary, and 53 (93.6%) did not demonstrate any degree of physical disability at diagnosis. When a SC was diagnosed with leprosy, his house was visited to examine his HC. Among 256 HC of those students diagnosed with leprosy, 24 (9.5%) were also diagnosed with leprosy and 107 (41.8%) were seropositive. After two years of the first examination, we returned to two cities to reevaluate the same subjects. We reexamined 483 individuals from houses with at least one seropositive dweller. As a result, 84 (17.4%) new cases were detected during the follow up, while 7 (4.5%) new cases were detected among 95 seronegative subjects from houses without seropositive individuals (p = 0.02). The relative risk of developing leprosy was 136%; higher among dwellers of seropositive houses than of seronegative, in a two years follow up period (p = 0.01; 95% CI = 1.13 – 4.94).

Conclusion: Serology to detected APGL-1 demonstrated significant capacity to identify individuals and families at higher risk of developing clinical manifestations of leprosy. These results suggest that the undiagnosed leprosy cases detected during the year in proportion to the population is considered a core indicator to estimate the disease burden and used as a monitoring tool to measure the results of leprosy control program. It is considered as a proxy indicator to ‘incidence’ rate and highly sensitive, which is predisposed by case detection activities. In the absence of active leprosy case detection following the integration, ANCPR is a measure of new leprosy cases reported for diagnosis & treatment at the general health care system. Therefore, ANCPR is not necessarily a reliable indication of actual disease burden from epidemiological perspective as the health seeking behaviour of the communities is disappointing with regard to leprosy. In contrast, the national government gives priority to the areas with high ANCPR (>10 per 1 lac population) for planned focused special disease control activities and invariably neglect the areas with reported low ANCPR (<10 per 1 lac population). Disregarding vast geographical area on account of reported low endemicity may pose challenge to prospects of leprosy elimination. Hence, a study was undertaken to validate the actual disease burden in a defined area, which are excluded from special search activities for new case detection on the basis of low endemicity.

Methods: 31 blocks with low endemicity (NCDR < 10 per 1 lac population as on March 2010) located in 12 high endemic districts of Maharashtra state was selected for the study. An Epidemiological Validation Drive (EVD) was conducted in 35 health sub-centres (SCs) remotely located from each of 31 PHC areas selected on the basis of low leprosy endemicity (ANCPR reported in the last 3 yrs) in 31 blocks during December 2011 to January 2012. An active search (physical screening) of 1,53,009 population was carried out by trained health staff of respective PHC centres.

Results: 1,36,544 out of 1,53,009 (89.2%) population enumerated was screened from 35 selected SCs of 31 PHCs during EVD and 923 persons were identified as leprosy suspects of which 107 new cases were confirmed with overall NCDR of 78.36 per one lac population. The MB proportion was 39.3%. The study revealed that the NCDR in 17 (54.8%) out of 31 selected SCs was alarming higher (>50 per lac population) than reported ANCPR by NEP as on March 2011. The NCDR in 28 SCs ranged from 19.2 to 382.4 per one lac population with mean NCDR being 64.03. Only 3 out of 31 SCs (9.7%) reported zero NCDR.

Conclusion: It is confirmed that even the areas signified as low endemic, the difference between the reported new case detection rate and actual incidence have been substantial. Therefore the value assigned for the selection of areas for disease control activities should not based on NCDR. There is empirical evidence that warrants uniform implementation of intensified leprosy control activities that alone can contribute to sustain the achievements made so far and further reduce the disease burden.
COMPARATIVE TREND ANALYSIS OF NEW LEPROSY CASES REPORTED TO TERTIARY INSTITUTION OF ENDOMEMIC DISTRICT AND STATE OF CENTRAL INDIA (2001-12) : HOW FAR IS ELIMINATION?

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Introduction: India has achieved leprosy elimination in 2005 but still contributes to > 55 % of new leprosy cases detected globally. New cases differ widely in time and place. Enhanced global strategy and MDG6 pays special emphasis on sustaining early case detection, thereby interrupting transmission. Roles of peripheral and referral public health institutions has also changed, post integration. Thus the profile of cases also differ. Peripheral Institutions suppose to undertake early diagnosis of cases while referral institutions to cater complicated cases.

The study compares and analyses the pattern of new cases coming to tertiary referral institution of GOI, the district and endemic state where the institution is located as well national profile. Thereby assessing the magnitude of transmission and progress towards elimination

Methods: Retrospective record based analysis of new cases registered during 2001-12. Information sources were records and reports of Regional Leprosy Training and Research Institute (RLTRI), Chhattisgarh state health department and Central Leprosy division of Government of India. Selected indicators viz., PR, ANCDR, Proportion of MB, females, child and grade II deformity was calculated and analysed over time (2001-12). Comparative analysis was performed.

Results: Average annual attendance of new cases registered in RLTRI was 350-450 during 2001-2003 (pre-integrated period) rose to more than 600-700 cases since 2004 and continued thereafter. In contrast Raipur district, Chhattisgarh state and India recorded continued declining trend of new cases during the period. However the share of new cases in Chhattisgarh province and Raipur district continued to rise. Grade II deformity proportion rose from <1 % to about 10 % in RLTRI compared to 15 % to 9 % in Raipur district and 15 % to 6.8 % in Chhattisgarh state during the period under analysis. Child proportion declined from 20 % to 10 % in RLTRI, while Raipur and Chhattisgarh figures declined from 15 % to 5 % during the period.

Conclusion: RLTRI showed increasing trend of new cases with higher proportion of Grade II deformity. This indicates that more cases are going to referral institution and less are reported to periphery, which may lead to delay in diagnosis and continued transmission in the community. Intensified monitoring and closer supervision is required to check and reverse the trend.

DEVELOPMENT OF LEPROSY DATA BASE USING UCHA AND GEOGRAPHICAL INFORMATION SYSTEM OF LEPROSY CONTROL IN THAILAND

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Introduction: In the past, the leprosy surveillance system in Thailand was conducted by reporting the detection of new leprosy cases through official paper reports. Provincial Health offices collected reports from hospitals and sent to Regional Disease Control Offices which further sent to the central office, namely Raj Pracha Samasai Institute. The patient data were corrected and saved in Microsoft Office Excel. However, there were several mistakes and delay in reporting patient data. Thus, since 2009, UCHA system has been introduced for reporting and collecting leprosy patient data in Thailand through internet system.

Methods: Data structure was created and set. All available leprosy patient data since 1997 to 2009 were transferred from Microsoft Office Excel to UCHA. Workshops were arranged for regional leprosy officers to practice the techniques of reporting patient data through UCHA system and data analysis.

Results: The patient data have been presented in real time. This innovative system helps both central and regional leprosy officers be able to access and examine the data at the same time. The repetition of the patient data has been reduced. Analysis of data can be performed in every aspect rapidly. Data safety is very high since only involved staff who have passwords can access the UCHA system. Since 2011, Ra Pracha Samasai Institute has linked leprosy patient data base in UCHA system to geographical information system (GIS). GIS can present the patient mapping at all levels; country, region, district, sub-district and village. It can present update leprosy situation and patient mapping.

IN SEARCH OF REMAINING FOCI: MAPPING NEWLY REGISTERED LEPROSY CASES IN 14 STATES IN SOUTHERN NIGERIA.

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Introduction: Nigeria achieved the WHO leprosy elimination target at national level in 1998, two years ahead of the global target year of 2000. Since then, the country has been notifying between 3,000 and 4,000 cases annually. There are 272 local government areas (districts) with a population of 53.2 million in the 14 GLRA-assisted states. The 14 states account for about a third of the national total case notification. As is the case in many leprosy endemic regions of the world, the burden of the disease appears to be markedly unevenly distributed between and within Nigeria’s 36 states and the Federal Capital Territory. To provide policy-makers and programme managers an easily accessible appreciation of the remaining foci of disease in the region, GLRA embarked on a systematic mapping of newly registered leprosy cases in the area. The main aim of the exercise was expected to inform programming and greater efficiency in allocation of scarce programme resources.

Methods: A cross sectional mapping of the burden and distribution of new leprosy cases across and within the 14 southern states supported by the GLRA was done. All newly registered cases in 2011 were captured according to their areas of residence in the local government areas (district) in each state. The data were processed with WHO HEALTH MAPPER software using the individual state geographical maps as backdrop. The colour coding was such that red, yellow and green represented high, medium and low burden respectively.

Results: The results (presented on tables and maps of the various states) indicate that residents of 19 local government areas in 5 states have ‘high endemicity’ (≥ 30/100,000 population) while 25 local government areas in 9 states met the conditions for ‘moderate endemicity’ (20-29/100,000 population).

Conclusion: The exercise provides empirical evidence for the continued existence of foci of leprosy in southern Nigeria and makes the problem more easily appreciated by policy-makers/programme managers. Uneven distribution which appears to be a hallmark of the disease elsewhere in the world is also evident here. Arguably, using only one year notification data for the exercise impedes ability to take account of annual variations in case-finding and should therefore be considered a limitation. It is planned to repeat the exercise using appropriate global positioning system (GPS) equipment for greater accuracy and wider applicability.

INTEGRATED PREVENTION OF DISABILITY (IPoD) PROGRAMME IN RURAL SET UP OF MUNGER DISTRICT, BIHAR (INDIA)

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Introduction: India is contributing more than 60% of Leprosy and 40% of Lymphatic Filariasis cases of the world. One third population of over 40 years age in India have diabetes who develop foot ulcer in long term, 89% of Bihar population lives in villages and contributes more than 20% of India’s case load of leprosy and 17% Lymphatic Filariasis. These diseases produce foot disability which reduces the functional ability of individuals leading further to stigma, discrimination and separation from the community.

IPoD aims to improve the functional ability of individuals having foot disability, reduce social and self stigma and discrimination from the community.

Methods: PhD camps were designed and organized at all Primary Health Centers with the support of District Health Society of Munger in January 2008. Before camps intensive IEC campaigning about the camp was done well in advance with the support of IEC mobile Van. IPC conducted through community health workers. 561 foot disabled (Leprosy- 165, Lymphatic Filariasis (Elephantiasis) - 303 and Diabetic ulcer - 3) persons were screened and received the techniques of Self care practices, IPoD Kit, Protective footwear, Podiatry appliances, Exercise (Active & Passive). Self Support Groups were formed among beneficiaries at Panchayat level and monthly monitoring system was introduced through community.
Results: After one year, data showed that 94% of ulcers healed, only 2% recurrent new ulcers, swelling of Elephantiasis was reduced in 65%, Economic status was increased by 35%. Acute attack among lymphatic patients was reduced. Stigma in community, self-Stigma, reduced and participation was increased.

Conclusion: IPD camps are reaching out to large no. of patients at a time and help them learn the techniques of morbidity/self-care management. There was a significant decrease in cases of ulcer and decrease in swelling in the affected region. Being a community based approach the results are more than anticipated. IEC campaign created awareness to wide spectrum of people. The technique of integrated Morbidity/self-care management (self-care and selected Exercise – Pumping & rolling) was accepted by community. It reduced stigma among individuals and in community. It cost effective and can be replicated in larger area.

O-090
Presentation Time: Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session: Prevention of Disability
Presenter: Pringe Wagenar

TWO RANDOMIZED CONTROLLED CLINICAL TRIALS TO STUDY THE EFFECTIVENESS OF PREDNISOLONE TREATMENT IN PREVENTING AND RESTORING CLINICAL NERVE FUNCTION LOSS IN LEPROSY: THE TENLEP STUDY PROTOCOLS

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Introduction: Nerve damage in leprosy often causes disabilities and deformities. Prednisolone is used to treat nerve function impairment (NFI). However, optimal dose and duration of prednisolone treatment has not been established yet. Besides treating existing NFI it would be desirable to prevent NFI. Studies show that before NFI is clinically detectable, nerves often show subclinical damage. Within the ‘Treatment of Early Neuropathy in Leprosy’ (TENLEP) study two double blind randomized placebo-controlled clinical trials will be carried out: a trial to establish whether prednisolone treatment of 32 weeks duration is more effective than 20 weeks in restoring nerve function in leprosy patients with clinical NFI (Clinical trial) and a trial to determine whether prednisolone treatment of early subclinical NFI can prevent clinical NFI (Subclinical trial).

Methods: Two randomized controlled trials (RCT) with a follow up of 18 months will be conducted in six centers in Asia. In the Clinical trial, leprosy patients with recent (< 6 months) clinical NFI, as determined by Monofilament Test and Voluntary Muscle Test, are included. The primary outcomes are the proportion of patients with restored or improved nerve function in the Subclinical trial, leprosy patients with subclinical neuropathy, as determined by Nerve Conduction Studies (NCS) and/or Warm Detection Threshold (WDT), and without any clinical signs of NFI are randomly allocated to a placebo group or treatment group receiving 20 weeks prednisolone. The primary outcome is the proportion of patients developing clinical NFI. Reliability and normative studies are carried out before the start of the trial.

Results: The two RCTs of the TENLEP study were successfully started in April 2011. Details on these trials will be explained in this presentation.

Conclusion: This study is the first RCT testing a prednisolone regimen with a duration longer than 24 weeks. Also it is the first RCT assessing the effect of prednisolone in the prevention of clinical NFI in patients with established subclinical neuropathy. The TENLEP study will add to the current understanding of neuropathy due to leprosy and provide insight in the effectiveness of prednisolone on the prevention and recovery of NFI in leprosy patients. In this paper we present the research protocols for both Clinical and Subclinical trials and discuss the possible findings and implications.

O-091
Presentation Time: Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session: Prevention of Disability
Presenter: Thanayalikhun Pijaraj

FACTORS CONTRIBUTING TO ADDITIONAL DISABILITIES DURING TREATMENT IN LEPROSY PATIENTS IN THAILAND

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Introduction: Prevention of disability (POD) during treatment is aimed at preventing further additional disability which may occur during such period. In 1990, National Leprosy Programme (NLEP) by Leprosy Division undertook the “Evaluation of Leprosy Elimination Programme” and found that less than 50 percent of health units could provide qualified nerve function assessment (NFA), and 10 percent of leprosy patients suffered additional disabilities during treatment. The objectives of this health system research was to identify factors contributing to additional disability developed during treatment in leprosy patients, in order to recommend on coverage and quality of POD service in Thailand.

Methods: The quantitative research part was cross-sectional descriptive study and conducted by distributing questionnaires to find the coverage and quality of POD services in health units of Ministry of Public Health (MOPH). The qualitative research part was performed by in-depth interviews in hospital directors, doctors, health workers and leprosy patients; observing POD services system; documentary review of OPD cards, leprosy patient cards, POD record form, health education checklist form, leprosy manual, leprosy clinical practice guideline(CPG) and annual report in 12 hospitals sampled out of 12 Disease Prevention and Control offices.

Results: The results revealed that 212 hospitals (29.7%) of all MOPH hospitals in Thailand provided POD services, with only 178 hospitals (24.9%) could provide qualified POD services. When it was compared to those of the previous year, a decline was observed. Factors contributing to the decreasing coverage and quality of POD services on the provider’s side were policy declaration, human resource administration, workload, service system, knowledge, attitude, complexity and monitoring, priority and complexity of POD activities. Factors on patient side were unaware of one’s right to receive POD services, receiving incomplete treatment and care of complications emerging during MTB treatment and lack of counseling. Most patients were optimistic with respect to providers and POD activities.

Conclusion: It was recommended that improvements need to be made in terms of policy, strategies and activities to revitalise leprosy control system. Focus should be made on human resource development, referral system, setting up hotline services system and adequate leprosy experts are needed.
Conclusions: The EHF score is an important tool to apply in primary health care, to detect the progression of physical disability and to initiate adequate preventive measures. The EHF score should always be assessed at diagnosis, during multidrug therapy and reactive episodes, and after release from treatment. A special focus should be given to patients after release from treatment, as they do not present regularly to health facilities. The results of this study lead to the suggestion to establish a system for monitoring and surveillance of leprosy reactions for a period of six months up to five years after release from treatment.

Results: Several vaccines strategies centered on the use of whole mycobacteria have been evaluated but BCG is the only vaccine currently administered for the prevention of leprosy. Leprosy remains prevalent in countries with widespread BCG vaccination programs, however, and protection afforded by BCG against leprosy appears to wane over time. Experimental immunizations with crude M. leprae antigens have demonstrated that proteins within the cell wall, cell membrane and cytosol fractions can provide protection when administered with adjuvant before infection. The use of M. leprae-derived material, however, prohibits large-scale production. We are currently developing a defined sub-unit vaccine, using specific proteins produced by standard recombinant methods and utilizing a safe and potent adjuvant. Proteins have been selected on the basis of recognition by, and secretion of the pro-inflammatory cytokine IFN-γ from, cells of PB patients and healthy household contacts of MB patients (HHC). Further selection has been achieved by evaluation in experimental models, resulting in the generation of a single chimeric fusion protein comprising 4 M. leprae antigens. Adjuvant has been selected on the basis of immune biasing toward a T-helper 1-type response and current use in clinical trials for other indications.

Conclusion: It is our belief that the introduction of a defined vaccine with the ability to limit the spread of M. leprae infection would have a great and lasting impact on leprosy. The principles of traditional prophylactic immunization can be applied in both pre- or post-exposure infection settings, with the aim or of preventing infection, disease progression, or both. Strategies to permit such trials will be discussed.

Results: Nerve biopsy was performed in 46 patients (70% male, mean age 42 ± 10.6 years) that had been treated for leprosy (MB=91%) a mean of 8.79 years before. The sural nerve was the most frequently biopsied nerve (49%), followed by the dorsal cutaneous branch of the ulnar (43%) and the superficial peroneal nerves (11%). AFB was found in 31 (67%) samples and signs of inflammation were observed in 15 (33%). Nerve conduction study showed sensorimotor paresis in 15% of the patients (14% in R and 20% with N). Both groups of patients had a median of 13/14 nerves impaired. Sensory neuropathy predominated in both groups, a median of 8 nerves (95% CI: 5.6-8.4) in patients with N and of 7 nerves impaired (95% CI: 5.6-7.2) in patients in R. No conduction could be registered in sensory nerves more frequently in R (median=5, 95% CI: 4.3-6.7) than in patients with N (median=4, 95% CI: 3.1-4.4) and 3.5 (95% CI: 2.2-4.8) nerves, respectively. The difference in the number of impaired nerves was not significant between the groups (Mann-Whitney U test, p=0.05).

Conclusion: Nerve impairment deterioration can be observed long after release from treatment with MDT. Patients may not respond to corticosteroid treatment due to the persistence of infection which requires specific anti-leprosy MDT.

Methods: To activate naive T cells convivially using Mycobacterium bovis BCG (BCG), rBCG (BCG 070M) deficient in urease, expressing the fusion protein of BCG-derived heat shock protein (HSP) 70 and Mycobacterium leprae-derived major membrane protein (MMP)-II, one of the immunodominant antigens (Ag) of M. leprae, was newly constructed.

Results: BCG 070M was more potent in activation of both CD4+ and CD8+ subsets of naive T cells than other rBCGs including urease-deficient BCG and BCG-M showing HSP70-MMP-II fusion protein, when assessed using human monocyte-derived dendritic cells (DC) as Ag-presenting cells (APCs). BCG 070M efficiently activated DC to induce cytokine production and phenotypic changes, and activated CD4+ T cells even when macrophages were used as APCs. The activation of both subsets of T cells was MHC and CD86 dependent. Pre-treatment of DC with chloroquine inhibited both surface expression of MAMP-II on DC and the activation of T cells by BCG 070M-infected APCs. The naive CD8 T cell activation was inhibited by treatment of DC with brefeldin A, an inhibitor of TAP-dependent Ag transport, and lactacystin, an inhibitor of proteasome-dependent cytosolic cross-priming pathway. From naive CD8+ T cells, effector T cells producing perforin and memory T cells having migration markers, were produced by BCG 070M stimulation. Primary infection with BCG 070M in C57BL/6 mice produced T cell responses to in vitro secondary stimulation with MAMP-II and HSP70, and more efficiently inhibited the multiplication of subsequently challenged M. leprae in the footpad than vector control BCG.

Conclusion: These results indicate that the triple combination of HSP70, MMP-II and urease depletion may provide useful tool for inducing better activation of naive T cells, and BCG 070M could be a good vaccine candidate.

Conclusions: The widespread provision and use of multi-drug therapy has resulted in a massive reduction of the number of registered worldwide leprosy cases. Over the last decade, however, the number of new cases detected each year has remained relatively stable. While detect-and-treat or chemoprophylactic strategies can interrupt M. leprae infection, the nature of drug activity dictates that efficacy is limited to individuals who are already infected and means such strategies provide only a short term benefit. A vaccine has the potential to provide a longer term solution.

Methods: The host immune response is critically involved in leprosy development and it is estimated that 80-90% of those who become infected with M. leprae naturally clear the infection. Those individuals that develop symptoms present across a wide clinical, histopathological and immunological spectrum. The pro-inflammatory response of paucibacillary (PB) patients limits bacterial replication and dissemination, suggesting that this could be harnessed to prevent multibacillary (MB) cases and interrupt transmission.
ORAL PRESENTATIONS

G-096

Presentation Time: Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session: Vaccines
Presenter: Roberta Pinheiro

IMPACT OF PGL-1 SEROPOSITIVITY ON THE IMMUNE RESPONSE TO MYCOBACTERIUM LEPRAE ANTIGENS

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Introduction: The detection of antibodies to the phenolic glycolipid 1 (PGL-1) antigens of M. leprae has been used to understand the epidemiology of subclinical infection. Our previous data demonstrated that contact examination combined with PGL-1 testing and BCG vaccination remain important strategies for leprosy control. The finding that rates of leprosy cases were highest among seropositive contacts justified targeting this specific group for close monitoring. Therefore it is possible that the combination of IgM antibodies and cell-mediated immune markers can distinguish active disease from sub-clinical infection. The aim of this study was to evaluate the immune response in PGL-1 seropositive contacts.

Methods: Leprosy contacts were examined as part of the surveillance programme of the Oswaldo Cruz Institute Leprosy Outpatient clinic in Rio de Janeiro. The presence of IgM antibodies to PGL-1 in sera at the time of index case diagnosis were evaluated in 149 contacts. Whole blood was collected in Pax gene tubes to evaluate PGL-1 in sera at the time of index case diagnosis were evaluated. Whole blood Leprosy contacts were examined as part of the surveillance programme of the Oswaldo Cruz Institute Leprosy Outpatient clinic in Rio de Janeiro. The presence of IgM antibodies to PGL-1 in sera at the time of index case diagnosis were evaluated in 149 contacts. Whole blood was collected in Pax gene tubes to evaluate VDR, FoxP3, (DO, IFN-γ and IL-10) gene expression by real time PCR. Peripheral blood mononuclear cells (PBMC) was stimulated with 10 μg/mL sonicated M. leprae or with the M. leprae proteins ML0840 and ML2478. Pro-IFN-γ, IL-1β, IL-6, TNF, IL-12p40, IL-17 and anti-inflammatory cytokines (IL-4, IL-10, IL-13) were measured in stimulated supernatants by multiplex assay after 72h of culture. IFN-γ production was also measured in the supernatants after 5 days of culture. Cytokine gene expressions were evaluated by real time PCR after 3h of stimulus. Multivariate cell flow cytometry was performed to determine parameters of adaptive immune response in 72h of culture.

Results: The present study included 149 contacts (97 from multibacilar index case and 52 from paucibacilar index case). 91 contacts were female (mean age= 38.3, SD=16.6) and 58 were male (mean age=39.5, SD=17.7). The rate of seropositivity to PGL-1 was 18.12% among contacts. Analysis of gene expression in whole blood demonstrated that PGL-1 seropositive (PGL-1(+)) contacts have decreased expression of CD4+CD25+FoxP3+ phenotype in CD4+CD69+IFN-γ and IL-10, IL-12p40, IFN-γ and IL-17 in response to sonicated M. leprae and ML2478, but not ML0840. ML2478 increased IL-12p40, IL-17 and anti-inflammatory cytokines (IL-4, IL-10, IL-13) were measured in stimulated supernatants by multiplex assay after 72h of culture. IFN-γ production was also measured in the supernatants after 5 days of culture. Cytokine gene expressions were evaluated by real time PCR after 3h of stimulus. Multivariate cell flow cytometry was performed to determine parameters of adaptive immune response in 72h of culture.

Conclusion: Our data suggest that in PGL-1(+) contacts a regulatory pathway that involves vitamin D and FoxP3 is increased which contributes to lower in vivo responses to M. leprae antigens.

G-097

Presentation Time: Tuesday 17/09/2013 at 16:00 – 17:30
Symposium Session: Vaccines
Presenter: John Spencer

EVOLUTION OF THE ANTIBODY RESPONSE IN HEALTHY HOUSEHOLD CONTACTS THAT PROGRESSED TO CLINICALLY DIAGNOSED HANSEN’S DISEASE

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Introduction: Household contacts of individuals with untreated leprosy disease likely have the highest risk of eventually succumbing to disease. Serum samples were obtained at two separate timepoints from twenty-four healthy household contacts of index cases, one at enrolment and another sample at the time that the individual was clinically diagnosed with Hansen’s disease. The duration of time elapsed between these two timepoints ranged from 1 month to over 11 years. The sera from these two timepoints were examined for changes to the antibody titer against M. leprae antigens by immunoblot and ELISA.

Methods: The paired serum samples were examined for reactivity by immunoblot to the protein antigens LID-1, Ag85B (ML2028), and the native M. leprae cytosolic subcellular fraction (MLSA). The antibody titer was also assessed by ELISA against ML2028, ND-O BSA (to measure the anti-PGL-I titer), and lipoarabinomannan (LAM).

Results: Individuals were classified in the disease spectrum at diagnosis as tuberculoid (10/24, 42%), indeterminate (9/24, 36%), lepromatous (2/24, 8%), or the pure neural form (3/24, 12%). Only two individuals had a measurable bacillary index (BI), the rest had a BI = 0. Eight individuals showed increased reactivity over the baseline sample to one or more antigens in both immunoblot and ELISA. Overall, increases in the titers in the individuals in this group were found against PGL-I (5/8, 63%), protein antigens (6/8, 75%) and LAM (7/8, 88%). Interestingly, the individual that showed the most dramatic increase in titers to all antigens by both immunoblot and ELISA over a three year time period was a patient that developed pure neural disease.

Conclusion: The antibody titer of those household contacts who eventually developed disease symptoms was found to increase over time in about one third of the individuals in this study. It may be possible to monitor these changes over time to predict those individuals who are most at risk of succumbing to disease.
POST CALAZAR DERMAL LEISHMANIASIS AND ERYTHEMA NODOSUM LEPROSUM:
CASE REPORT AND LITERATURE REVIEW

M. A. B. Trindade 1,2,*, L. L. Cruz 3, M. N. Sotto 4

Introduction: Leprosy and leishmaniasis both are endemic infections diseases and important public health problems in developing countries like Brazil. We present a case report of these two neglected diseases, which coinfection has been rarely reported and call attention to the diagnosis of post calazar dermal leishmaniasis, without any case reported at Latin or North America.

Methods: Female patient, 53 years old, born and raised in Arapiraca - Alagoas, with a history of leprosy treated for 14 months (finished three months ago), came to the dermatology clinic presenting subpolar lepromatous leprosy with necrotizing erythema nodosum lepromatous (ENL) reaction. Despite the introduction of prednisone and thalidomide, it evolved to a worsening of erythema nodosum, pancytopenia, hepatosplenomegaly and liver failure. New skin biopsies were performed, being consistent with leprosy in regression. Bone marrow examination showed intracellular and extracellular leishmania. Amphotericin B was added for the treatment of visceral leishmaniasis (calazar). In spite of the good clinical response, six months after the end of the treatment, the patient had erythematous papules on the forehead, with histopathology and immunohistochemistry demonstrating leishmania, confirming dermal leishmaniasis post calazar diagnosis, treated with reintroduction of amphotericin B which led to regression of cutaneous lesions. About 6 months after these treatments the patient had no signs or symptoms suggestive of leprosy and leishmaniasis.

Results: The post calazar dermal leishmaniasis is characterized by erythematous or hypopigmented macules, papules and nodules or infiltrates on the face, which spread throughout the body and can affect mucous. This case, the patient developed after the treatment for leprosy and Calazar, possibly by improving your cellular response. This entity should be considered in cases of leprosy not responsive to treatment or in repeated reactive reactions or severe ones.

Conclusion: The post calazar dermal leishmaniasis is a hypersensitivity response of visceral leishmaniasis, and is rarely associated with leprosy.

P-003 Presentation Time: Tuesday 17/09/2013 at 10:40 – 10:50
Abstract Topic Name: Best Clinical Practice
Presentation Screen Number: 1
Presenter: Prof Dr Oleg Degtyarev

IRON-CONTAINING PROTEINS AS A MARKER OF M.LEPRAE PERSISTENCE IN LEPROSY PATIENTS IN THE CLINICAL REGRESSION STAGE

O. Degtyarev 1,2,*, V. Duiko 1, V. Tsemba 1

Introduction: The aim of the study was to examine the levels of lactoferrin and ferritin in sera of lepromatous leprosy patients shooting range in clinical and microscopy recourse and determine the correlation relationship between the concentration of lactoferrin and ferritin in serum and persistence of M.leprae.

Methods: The dynamics ofactoferrin (commercialELISA test-systems, the manufacturer vector-Best, Russia), ferritin (commercial ELISA test-systems, the manufacturer kSentril C.H.A, Milan, Italy) in the serum of 160 patients with lepromatous type of leprosy the clinical regression stage, smear-negative, treated out patients was studied. Specifiseroimmunodiagnosticof leprosy (detectionof antibodies to species-specificandcross-reactiveantigens M.leprae) was carried out by ELISA andcounter-reaction ofimmunoelctrophoresis.

Results: From 160 patients of outpatient group, 100 patients were seropositive by the level of antibody response, ie antibodies to different epitopes M.leprae, were revealed. 60 patients were seronegative. Patients from seropositive group showed a significant decrease in the concentration of lactoferrin and ferritin in serum comparative patients of seronegative group (p <0.001). In seronegative patients of ambulatory group the concentration of studied proteins was significantly higher than indices of patients of seropositive group.

Conclusion: Indicators of overall seropositivity of lepromatous leprosy patients beein in clinical and bacterioscopic regression correlated with low levels of lactoferrin and ferritin in blood serum and indicated the presence of focus of M.leprae persistence.

P-006 Presentation Time: Tuesday 17/09/2013 at 10:50 – 11:00
Abstract Topic Name: Best Clinical Practice
Presentation Screen Number: 1
Presenter: Artur Gosling

PREVALENCE AND CHARACTERISTICS OF NEUROPATHIC PAIN IN TREATED LEPROSY PATIENTS IN A TERTIARY CARE REFERENCE HOSPITAL

A. P. Gosling 1,*, L. E. Castro 1, L. SAADI 1, M. K. GOMES 1, A. CUNHA 1 and Interdisciplinary Program of Leprosy - HUFRF/UFJR

Introduction: Neuropathic pain in leprosy has been recognized as an important complication after multidrug therapy. However, only a few studies were conducted to determine the prevalence and characteristics. The purpose of this study was to describe the prevalence and characteristics of neuropathic pain in treated leprosy patients.

Methods: Cross sectional study during 12 months between 2011 and 2012. An interview was conducted with 114 patients reporting persistent pain after multidrug therapy for leprosy. Patients with hand and foot injuries, presenting reactions, deformities or other painful syndromes described in medical registries were excluded. Douleur Neuropathic 4 Questionnaire and clinical assessment were used to describe the prevalence of neuropathic pain. McGill Pain Questionnaire, Visual Analogue Scale and self-reporting were used to describe the characteristics of pain. Ethical and Research Committee of Clementino Fraga Filho University Hospital approved this study.

Results: 50 patients were eligible for the final sample and all of them have neuropathic pain according to clinical assessment (43.8%) and 48 (42.1%) from Douleur Neuropathic 4 Questionnaire. 64% were male, mean age 45.6 years old and 70% received lepromatous classification. All the patients have more than 1 year of diagnosis and were using prednisone for pain control, 70%, have more than 5 injured nerve trunks. In 48% the pain was the first symptom of the disease. Ulnar nerve sensory location represents 68% of pain complain in upper limbs and 66% in tibial nerve for lower limbs. All the patients have more than 1 year of pain, mean of intensity in Visual Analogue Scale was 5 and 76% have moderate to severe pain. 54% report constant pain and 56% have limitations in daily activities. Physical stress (88%) and sustained postures (78%) were worsened factors. Numbness, tingling and burning were the most important descriptors for neuropathic pain. Tugging and tiring were the most important descriptors for McGill Pain Questionnaire. 86%, have motor and 100%, have sensory impairments.

Conclusion: The prevalence of neuropathic pain was high in this sample. The patients of this study have classical characteristics of neuropathic pain. However, pain persistence, more than 1 year of complaints, moderate to severe intensity and multiple mechanisms are typical chronic pain characteristics.
Methods: A retrospective study based on the Information System of Notifiable Diseases SINAN database and on official medical records of leprosy cases detected in children from January 2006 to December 2011 at the Fundação Alfredo da Matta (FUAM), a reference center for leprosy and other skin diseases, in Manaus, Brazil, where the study population was selected. Data were collected from medical records and from the PCID <1. Epidemiological and operational indicators were recommended by the Ministry of Health to analyze the results.

Results: During study period, a total of 1,742 leprosy cases were detected at FUAM. Among them, 164 new leprosy cases in children, representing 9.6% of all new cases detected. Of these, 157 cases were included in the study. Males were slightly predominant corresponding 52.2% of all cases, being the age group 10 to 14 years the most prevalent, representing 59.9%. The most frequent subtypes of leprosy were borderline tuberculoid 38.9%, followed by tuberculoid leprosy 31.98%. Regarding operational classification, paucibacillary forms represented 51.0% of the cases. The degree of disability at diagnosis was assessed in 99.4% of patients, of these, 3.2% and 8.3% had grade I and grade II disability, respectively. During the study it was observed that 43.9% of cases had registered contacts affected by the disease, of which 33.3% were parents, and 30.5% had the presence of more than one family contacts affected by the disease. Comorbidities were recorded in 28% of patients, with a higher prevalence of skin diseases and intestinal parasites with 38.6% each.

Conclusion: Based on Brazilian Ministry of Health official data, despite of success of leprosy control actions, the Amazonas state remains with high levels of endemicity of the disease including among children. This should not be overlooked by health authorities since the detection rate of leprosy in children is related to recent disease outbreaks and transmission assets. The decline in the prevalence of leprosy should not run alongside with the cessation of active surveillance for detection of leprosy cases by the government health systems.

P-168

THE ACTUAL STATE OF LEPROSY IN ESTONIA – AN UPDATE REPORT AFTER 20 YEARS

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Methods: Systematic, centralized, on-site detection of leprosy patients in Estonia.

Results: From 1993 – 1995 the Estonian physicians all over this country were informed on hand of papers and speeches on this topic. The 33 patients registered up to that time were put on MDT therapy. 27 of them were on out-clinic treatment and 6 on in-clinic treatment in the Estonian Leprosarium Kuuda. In 1995 after finishing the MDT therapy, the Leprosarium Kuuda was changed into an old people’s home and the 6 patients continued to stay there because of their advanced age. Every year the contact persons known so far were checked up and the attention of the local doctors were aroused. So, 4 new cases were detected. During the last 20 years, 28 patients died because in 1993 the average age of leprosy patients was over sixty years. At present there are 9 registered leprosy patients: one of them in the Island Saarema (endemic territory), and eight inland.

Conclusion: Because of the intensive training of physicians and due to the check-up of the contact persons known during a long period of time, four new cases of leprosy could be detected in Estonia.
P-214

Presentation Time: Tuesday 17/09/2013 at 10:40 – 10:50

Abstract Topic Name: Epidemiological Surveillance

Presentation Screen Number: 3

Presenter: Angélica Fabri

DEGREE OF DEFORMITY IN LEPROSY CASES DIAGNOSED IN CHILDREN UNDER 15 YEARS OLD AND ITS RELATIONSHIP WITH OPERATIONAL AND EPIDEMIOLOGICAL FACTORS

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Introduction: The detection of leprosy in children under 15 years old and the occurrence of deformity can be related to the exposure to cases not detected by the health service and with late diagnosis. The reduction of the number of cases among those under 15 years old and the reduction of new case detection with grade 2 deformity are strategy adopted by World Health Organization to reduce the disease burden in the world. The present study aims at analysing the degree of deformity in leprosy cases diagnosed in children under 15 years old and its relationship with operational and epidemiological factors.

Methods: This epidemiological cross-sectional study was carried out at the Almenara, Araçatuba, and Diamantina, micro regions located in the Jequitinhonha Valley, northeast of the State of Minas Gerais - Brazil. Almenara and Araçatuba were selected because they have high rates of new leprosy cases and they are considered priority in the state’s disease control; Diamantina presented a high percentage of leprosy cases with deformity. Data between 1998 and 2010 was collected from the Information System for Notifiable Diseases database. Were analyzed the mean coefficient of detection and the proportion of cases in patients under 15 years old. For patients under 15 years old were assessed the proportion of new cases with grade 2 deformity, the proportion of new leprosy cases with deformity grade assessed at diagnosis and the proportion of cured cases at year with deformity grade assessed. Furthermore were investigated the variables gender, operational classification and detection mode. Treatment and analysis of data were carried out by software Statistical Package for Social Sciences version 18.0 and Statistical Software for Professionals, version 11.0.

Results: The average coefficient of detection was 32.96/100.000 inhabitants; 7.61% (n = 140) of new cases were diagnosed in children under 15 years old. 5% (n = 7) in this age group were grade 2 deformity at diagnosis. All leprosy cases in children under 15 years old had their deformity grade assessed at diagnosis and only 49% (n=69) of the ones discharged after cure were assessed. Prevalence of leprosy cases in children under 15 years old with deformity was higher in males (PR = 2.65; P = 0.032; CI 95%:1.09-6.45) and in multibacillary patients (PR = 14.68; P <0.001; CI 95%:3.54-60.87) and lower when the detection mode was passive (PR = 0.73, p = 0.47, 95% CI: 0.31-1.73).

Conclusion: Such context suggests high transmissibility and early exposure to Mycobacterium leprae. This situation contributes to maintaining the chain of disease transmission in the area and indicates that health care services should intensify leprosy control as more investment in health professionals training and educational activities regarding the signs and symptoms of the disease. Furthermore, it is important intensify the search for new cases and household contacts. Early diagnosis might break the chain of transmission and reduce the physical, psychological, social and behavioural burden of the disease.
NCLCA has conducted reconstructive surgery camps in which more than 7500 patients have been operated. Voices from the field are positive about impact of economic rehabilitation for income generation activities and many of them now have good income from the use of articles given.

Conclusion: In conclusion, Novartis Comprehensive Leprosy Care Association founded by Novartis Foundation for Sustainable Development has fulfilled its role in pioneering the disability care modalities, reaching to patients in need with increased patient outcome in each condition and training the health care staff who offer these on regular basis following adoption of many modalities by the government and other NGOs. Awards received by NCLCA include Golden Peacock Award for Innovative products and services and Reader’s Digest gold award for CSR. Appreciation by scientific community helps to serve the society better with the best available practices.

P-226
Presentation Time: Tuesday 17/09/2013 at 10:40 – 10:50
Abstract Topic Name: Prevention of Disability
Presentation Screen Number: 4
Presenter: Dr Atul Shah

MONITORING OUTCOMES AT THE END OF ANTIBIOTIC TREATMENT USING BU01, POD and BUFLS FORMS WITH 23 NEW CASES IN 2012 AT KUKUOM HEALTH CENTER ASUNAFO SOUTH DISTRICT, BRONG AHAFO REGION OF GHANA

L. F. Lehman 1, O. D. Tabiri 2, W. Tienah 1, L. Blushing 1, J. Ake 2

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Introduction: Current studies put the figure of existing leprosy-disabled cases in India at nearly 0.6 million. With a 3% disability rate in new case detection, annually about 3000 cases are added to this pool. Although multi-drug therapy (MDT) has prevented over 2 million people from developing disabilities, the need for disability care is overwhelming. Due to poor availability of disability prevention and care services almost throughout India, and also self-neglect because of poverty and lack of proper knowledge about self-care, the affected people continue to develop secondary deformities and become crippled. Therefore, Novartis Foundation for Sustainable Development has established Novartis Comprehensive Leprosy Care Association at India since over two decade. NCLCA’s focus is on providing services to prevent, correct and care for leprosy-related disabilities, transferring new skills and technology to healthcare providers, and empowering the disabled to help themselves.

Methods: The procedure followed at the camps is very simple and very organised. A few days prior to the camp the patients are made aware of the date and time of the camp by the local health officer or health worker. In some places, patients are sent letters informing them about the camp that is to take place in their area. This letter bears a clear notification that the patients will be compensated for loss of daily wages and travelling expenses. On the day of the camp, as soon as the patient arrives he/she is first registered and given a token by a health worker. From there on the children are attended to on a separate table and adults are examined on another one by the medical officers. The children are examined to detect high risk cases which are likely to develop into deformities. At the adult table, a medical officer checks the patient for deformities and ulcers. The patients suffering from hand or foot deformities are provided with splints and taught physiotherapy exercises in a group. Patients suffering from ulcers are provided with self-care kits and given a demonstration on how to use it. They are also provided with special MCR footwear.

Results: The concept of comprehensive leprosy care is based on the fact that disabilities in leprosy are a major source of de-habilitation, detachment from the family and community as also of stigma in society. The disability prevention, correction or care could make a tangible difference to the quality of life of affected individuals, make them economically independent, help them live a gainful life in society and eventually decrease the stigma. More than 25000 patients have been benefited through the camps.

Conclusion: Organising Disability Prevention and Medical Rehabilitation Camps seems an extremely good approach to render services to both old and new leprosy cases. On the job training of the health care staff is carried out for pragmatic approach to disability care and follow up. It has reduced community load of disability to a great extent.

P-038
Presentation Time: Tuesday 17/09/2013 at 10:30 – 10:40
Abstract Topic Name: Leprosy Control – Urban and Special Populations
Presentation Screen Number: 5
Presenter: Dr Atul Shah

CHILD CARE CAMPS FOR DISABILITY PREVENTION AND CARE FOR RFT CASES

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Introduction: Leprosy in children generally manifest after the age of 6 years, the reason being the incubation period is 2 to 5 years. When developed indeterminate type is common form, followed by borderline group. In the indeterminate group over 80% may heal or become frank PB or MB leprosy. Some of the children are more immunocompromised than others developing reactions. A patch on the face which does not disappear in 3 months is not likely to be pityriasis and leprosy diagnosis may be considered. A reversal reaction may be suspected if a lesion becomes inflamed suddenly or there is painful tender nerves. However, the difficulty lies in the fact that RR can occur even after treatment and some children may not seek treatment early.

Methods: In order to study the current situation in the RFT (released from treatment) children all children registered in past 3 years were listed out and called for follow up in “Child Care Camp” organized by Novartis Comprehensive Leprosy Care Association and Government of Gujrat or Maharashtra. The selected areas were endemic for leprosy and had nearly 10 to 15 % of leprosy cases detected annually. All children were examined for any “high risk” i.e. multiple patches or nodules still existing after treatment, thickened nerves particularly ulnar or median in upper extremity and lateral popliteal and posterior tibial in lower extremity. The thickened nerve in the vicinity of the patch except on the face was not considered as high risk. The other objective was to prepare medical officers to identify high risk cases and initiate a regular follow up to prevent or correct deformities.
Results: The results were startling in the form of detection of 33% cases comprising of those with disability grade 2 and those at high risk with weakness or loss of sensations and multiple patches which did not seem to have healed. Of the remaining children, in nearly 30%, cases there were no signs or symptoms of having suffered from leprosy. All others were cases of treated leprosy.

Conclusion: “Child care camps” has demonstrated that follow up of discharged cases is essential to prevent and correct disability. It has reduced the load of surveillance to bare minimum and with likely maximum benefit to cases. It has served as early reference for surgery – preventive neural decompression or corrective tendon transfers. The ancilliary benefits include identification of child not going to school and reasons thereof or recognition of those in need of financial support for higher education.

P-039
Presentation Time: Tuesday 17/09/2013 at 10:40 – 10:50
Abstract Topic Name: Leprosy Control – Urban and Special Populations
Presentation Screen Number: 5
Presenter: Abraham Selvakumar
 IMPARTING AWARENESS ABOUT LEPROSY AMONG CHILDREN OF MADRASAS SCHOOLS, AS A NEW CASE DETECTION METHOD
S. Abraham 1, S. MutthuPillai 1, A. Tiwari 2, L. Gorai 3, P. Peter 4, S. Paul 5
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Introduction: Before integration, School survey is one of the most important methods in new case detection strategy adopted during vertical program of National Leprosy Eradication Program (NLEP). The child population among new cases is a key indicator denoting transmission of leprosy. Hence interventions at schools cannot be ignored. In the post integration scenario, any new case detection intervention carried out should satisfy all these criteria such as... should be cost effective, participatory in nature, should not trigger stigma, less labour intensive, sustained outcome/impact and expected satisfactory yield. Hence educating and empowering Madras children would be an innovative method of new case detection strategy.

Methods: First the main religious leader controlling the Madrasa was identified and explained about usefulness of the leprosy awareness program. After obtaining permission a time table was designed to conduct orientation in planned manner to cover all the madrasas in the North East District. Firstly, one hour orientation training was given to the Head master and other teachers of the Madrasa schools. They have been oriented about early signs & symptoms, causes and consequences about the disease. Secondly, in every class flash cards and posters about Leprosy have been displayed. The Children were distributed with pamphlets on leprosy. The children those imparted the knowledge about leprosy, were also empowered to spread the message of leprosy in a positive manner. The children have been encouraged to ask questions about the disease. Later they were asked to self examine themselves at home, and spread the message to their family members and neighbours. And those having skin lesions were asked to report to The Leprosy Mission hospital.

Results: There are about 124 registered Madrasas in the National Capital Territory of Delhi. As a pilot study Madrasas located in one of the 11 districts were selected for the intervention. All the 26 Madrasas located in the North East district of Delhi is included in the study. So far 6 Madrasas have been completed in a planned manner. Total number of Boys and Girls oriented in leprosy were 1293. In turn they were able to identify one Pauci Bacillary case so far. The project will be completed sometime June 2013.

Conclusion: Imparting awareness about leprosy among children of Madrasa schools followed by self examination; Later Empowering them to spread the message about leprosy and screen the family member and neighbours would certainly expect to yield satisfactory results. The Leaders of Madrasas gave an overwhelming support and their participation in leprosy awareness program is encouraging. As children are our future leaders, certainly this initiative would contribute in new case detection in a sustained manner. Similarly leaders from Gurudwara also have shown keen interest in conducting similar exercises.

P-041
Presentation Time: Tuesday 17/09/2013 at 10:50 – 11:00
Abstract Topic Name: Leprosy Control – Urban and Special Populations
Presentation Screen Number: 6
Presenter: Yoshiko Okano
 RELAPSE OF HANSEN’S DISEASE DIAGNOSED BY LEPROMA IN NASAL CAVITY- A CASE REPORT-
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Introduction: In Japan today leprosy is a disease already well under control. We, however, believe that a more cautious attitude is needed for the disease. This is because, although their number is limited, there are still cases in which fresh leprosy lesions that can be recognized as leprosy lesions are found quite unexpectedly by observation of pathologic tissues from patients who had gone through routine skin smear test for a long time without having any Mycobacterium leprae detected. We experienced such a case and we will describe this case and report the findings obtained from the pathological specimen.

Methods: Case: 88 years old female
She had suffered from leprosy since she was 48 years old. She was initially treated by dapson, promin, isoniazid, clozaflamine, rifampicin... The yearly routine skin smear always showed negative results for about 20 years. However in April of 1997 at the age of 87, she complained of having an uncomfortable feeling in her right nasal cavity and a small polyposus nodule was found and extrpided. The specimen consists of a pinkish soft and moist material which showed ulceration on the mucosal surface. It measures 4mm in diameter. The specimen was examined pathologically.

Results: HE stain of this specimen shows a thin layer of necrotic surface which contains numerous polymorphonuclear leukocytes cells and some amorphous necrotic material. The submucosal layer shows histiocytic swollen and often foamy cytoplasmic cellural infiltration in great numbers and scattered lymphocytic infiltration in destructed layers. Ziehl-Neelsen stain shows numerous and swollen polymorphonuclear leukocytes cells containing rod like pink stained bacilli in their cytoplasm in the uppermost necrotic layer. The deep inner necrotic mucosal layer shows quite a few Ziehl-Neelsen positive bacilli. It was identified as a leproma.

Conclusion: In this case, the patient had been bacillus negative in skin smear test for nearly 20 years and had been considered clinically cured. We thought that the Case lesion showed early symptoms of a relapse of Hansen’s disease. It must be noted, that the relapse region of this patient was the vestibular nasal cavity, which can be regarded as one of the favorable places of the human body for the bacillus to lodge in. The fact that relapses occur suggests the possibility that the acid fast bacilli has been living in some parts of the human body after it is cured successfully.

P-058
Presentation Time: Tuesday 17/09/2013 at 10:30 – 10:40
Abstract Topic Name: Leprosy Control – Urban and Special Populations
Presentation Screen Number: 6
Presenter: Dr Venkata Ranganadha Rao Pemmaraju
EPIDEMIOLOGICAL SITUATION OF LEPROSY IN URBAN AREAS IN INDIA - A RAPID ASSESSMENT STUDY
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1Programmes, LEPRAsociety, Secunderabad, 2Programmes, State Leprosy Office, New Delhi, 3LEPRAsociety, Secunderabad, 4Netherlands Leprosy Relief, New Delhi, 5, 6LEPRAsociety, Secunderabad, 6Programmes, ALERT India, Mumbai, India

Introduction: Leprosy eradication is essentially based on breaking the chain of transmission through detecting all patients in a geographical location and treating them with Multi Drug Therapy (MDT). National Leprosy Eradication Program (NLEP) is planned considering the rural health structure. To define an effective NLEP in urban areas understanding the disease epidemiology and capacity of urban health structure in managing leprosy patients is elementary. A Rapid assessment was done with an objective to understand the epidemiological situation of leprosy in different urban locations and assess the capacity of urban health facilities to provide leprosy services.

Methods: A sample of 30 urban locations in India has been identified for assessment of leprosy situation and capacity of health staff. The main tools are desk review of the secondary data and interview of health staff working at district and urban health centres. Questionnaires were designed and field tested before collecting information using Microsoft Excel. Field investigation team after training collected information and computerised the data. The data was analysed to define epidemiological situation of leprosy and capacity of urban health staff to define a leprosy control strategy for urban settings. Population particulars, epidemiological data pertaining to leprosy cases, information on health facilities and their capacities to manage leprosy problem were collected.

Results: The decennial growth in urban population over the last decade showed a growth by 28.46%. 1,122 health facilities were found delivering health services and each centre covers a population of 15.4 Million on average as compared to 50,000 per health facility in rural areas. Extending services in 2,749 slums and 374 peri-urban villages was found challenging due to migration of population. Annual new case detection rate of leprosy patients in 11 out of the 39 locations are higher than the national average. Disability rate locations is 4.99%, which is higher than national average (3%), Treatment completion rate is also less than acceptable levels. 11 out of 30 urban locations do not have adequate health staff. 30% of health staff were not trained in leprosy.

Conclusion: Leprosy is still an important public health problem. Growing urban population and limited per-urban villages with a major population was the main operational challenge. Distribution of population for each urban health facility should be at feasible levels to improve...
access to services. Considering the above results of the rapid assessment, leprosy control model in urban settings needs to include activities like training of all health staff in leprosy, improving awareness on leprosy in the community and access to health services particularly in inadequately served areas like urban slums and peri-urban villages.

P-059
Presentation Time: Tuesday 17/09/2013 at 10:40 – 10:50
Abstract Topic Name: Leprosy Control – Urban and Special Populations
Presentation Screen Number: 6
Presenter: Vivek Pai

TREND OF SMEAR POSITIVE CASES IN THE URBAN SLUMS OF MUMBAI – A FIELD STUDY IN MUMBAI

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Introduction: Bombay Leprosy Project (BLP) covers an urban population of 2 million comprising mainly of slums including Dharavi one of the biggest slums in Asia. How leprosy case detection and treatment is managed in the post integration scenario in Mumbai was reported earlier in 2008 (Ganapati et al 2008). We present our experience in BLP in the post integration period (July 2004 to 2012) pertaining to the study of occurrence of new smear positive patients in urban slums of Mumbai.

Methods: The leprosy programme was integrated with the Health Posts (HP) of the General Health Care System (GHC) in Mumbai (population: 12 million) in July 2004. Health delivery in the city of Mumbai is highly complex. The health structure primarily comprises of HP medical colleges besides the non teaching hospitals. There are also General practitioners and Practicing dermatologists besides several specialists and corporate and private hospitals. Keeping in mind this backdrop, BLP has been offering services after reorganization post integration through few satellite clinics and extension units in public hospitals. These clinics are being strengthened and retained at the ward level and services sustained. Monitoring of detection of new cases with special emphasis on smear positive cases was undertaken and analyzed for the period after integration in the city of Mumbai.

Results: From July 2004 till December 2012, a total of 158 smear positive cases were detected out of 945 total new cases detected and registered for treatment in the Project area in a population of 2 million giving a trend of an average of 17 (16.7%) new smear positive cases in a year. Most of these cases reported directly to the satellite clinics and referral centre and teaching medical colleges and a few practising dermatologists. These cases as well as those identified through catchment clinics of BLP were confirmed by senior supervisory staff.

Conclusion: It is observed that there is a static trend in detection of new smear positive cases in project area during the study period indicating a constant pool of reservoir of infection in the community. Though the practice of taking skin smears is done away with in the routine programme, BLP has been continuing the practice of taking skin smears to identify the quantum of reservoir of infection responsible for chain of transmission of infection in the slums.

P-060
Presentation Time: Tuesday 17/09/2013 at 10:50 – 11:00
Abstract Topic Name: Leprosy Control – Urban and Special Populations
Presentation Screen Number: 6
Presenter: Nicole Holmes

TWO WOMEN FROM THE SAME FAMILY WITH SIMILAR EXPERIENCES WITH LEPROSY

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Introduction: My aunt, Michelle McKenzie, and I were both diagnosed with leprosy in our mid-twenties. Michelle was diagnosed in 1989, and I was diagnosed in 1991. Both diagnoses were made in the United States. My aunt was diagnosed at a clinic in Brooklyn, NY, and I was diagnosed at a clinic in my hometown, New Orleans, LA. Both diagnoses were made by skin biopsy, and both diagnoses were confirmed by bacterial culture.

Methods: Michelle and I would share our experiences with each other, and we were a constant reminder to me, that I would someday be well again. In preparation for this presentation, I came up with a list of questions that I emailed to my aunt in order to determine her experiences related to her diagnosis, treatment, and recovery; as well as her mental and emotional health, physical, and social changes. I also collected photos of my aunt and myself before, during, and after treatment to further document the transformations we both endured in all aspects of our lives.

Results: My aunt and I were both diagnosed in our late teens while in higher education. We noticed changes in our bodies that prompted us to seek medical attention, and resulted in us being diagnosed with leprosy. Michelle describes that “I was devastated, depressed and angry. Asking God why he did this to me, and thinking I was being punished for my sins.” I too felt this way, would often recreate in my mind my life’s actions, and which thing I did in particular that warranted this punishment.

I was impacted by how people treated me, in particular, some medical professionals who regarded me as a specimen instead of a person, or did not want to interact or deal with me because of my illness. I still think about the doctor who did not want to come into his office to greet me, but instead choose to speak to me from across the room, in the safety of the doorway. Michelle explains that “I was treated with scorn and neglected. Nurses didn’t want to touch me, but this was because of the Steven Johnson’s Syndrome.” In addition to my aunt coping with a diagnosis of leprosy, she also suffered from the effects of having an allergic reaction to Dapsone. There were also times we had to pick and choose who we shared our diagnosis with, in fear of the response we would receive. My aunt’s boyfriend left her shortly after he learned about her diagnosis, and I rarely told anyone about my illness in the beginning.

We were both active, pretty, young women at the time we were diagnosed, who were admired and looked up to by family and friends. As a result of the side effects of the medications we took, our complexions changed, we both had scars from nodules, and we gained weight. This resulted in changes in how we now saw ourselves, and in our self-confidence. We both endured periods of depression, but were able to seek out and get help through counseling.

Conclusion: My aunt and I may have lived in different countries, but our stories are similar. Michelle and I share the same message because of our struggles with leprosy, and our acceptance and appreciation for how it has shaped our lives for the better. My aunt expresses this best when she says: “My experience with this disease has made me stronger and closer to God. It has taught me that looks are not all in life, and that you must love yourself first, before you can love others.”

P-124
Presentation Time: Tuesday 17/09/2013 at 10:30 – 10:40
Abstract Topic Name: History of Leprosy
Presentation Screen Number: 7
Presenter: Dr. Jose Terencio de las Aguas

HISTORY OF LEPROSY IN SPAIN

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Introduction: Leprosy arrived in Spain first through Phoenicians who came to Andalusia, and later through Roman soldiers and civil servants who came from the Middle East and remained in Spain for 600 years. Then the Muslim presence for 8 centuries, being Valencia, Murcia and Andalusia the most affected areas.

Methods: The first leper colonies were founded in the Christian Spain, Barcelona, Asturias and Galicia; and after the Reconquest Valencia, Granada, Sevilla, Malaga and Canaries Island. Aivencas and Averroses from Muslim Spain and Arnu de Vilanova from the Christian Spain are quoted to be among the most important medical figures.

Results: It is discussed the growing of leprosy during the 19th century, especially in Valencia, fact that caused the foundation of the Fontilles sanatorium in 1903, commenting its important medical attention, investigation and teaching roles; in the same way the great work of the Spanish dermatologist in the diagnosis and treatment of sick people has led to the fact that of the 600 cases that were in the sixties, with an annual rate of 300 new cases, in the last 10 years are only diagnosed 10 to 14 new cases, being immigrants the 90%.

Conclusion: Nowadays leprosy is not a danger for the Spanish Public Health and it will never be an emergent disease.

P-125
Presentation Time: Tuesday 17/09/2013 at 10:40 – 10:50
Abstract Topic Name: History of Leprosy
Presentation Screen Number: 7
Presenter: Birno Akson

DIVERSITY OF MYCOBACTERIUM LEPRAE ON THE BASIS OF REPEITIVE SEQUENCES OF TTC FROMANCIENT BONES FOUND IN BALE AND EAST NUSA TENGARA, EAST INDONESIA

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Introduction: Excavations of the genetic material of pathogenic organisms in the ancient bones provide important information for the study of certain infectious diseases in ancient populations. In addition, the identification of bacterial DNA provides direct evidence and the frequency of occurrence of infectious diseases in ancient populations and may provide information about the evolution of microorganisms and related diseases. Several recent reports have succeeded in
isolating several Mycobacterium by using PCR technique, because the PCR technique, although very useful in amount of DNA in ancient biomaterials such as bone or soft tissue cannot be identified. This new approach not only of knowledge related to the evolution of different strains of Mycobacterium, but may also provide correlative data on the influence of environment on the development of Mycobacterium and biodiversity. However until now has never reported any Mycobacterium especially Mycobacterium leprae was found in a ancient bones from Indonesia, so too has not been widely reported throughout the world of M. leprae from ancient bones found on the old 2990 +/- 160 BP. The purpose of this study was performed diversity analysis of M. leprae on the basis of repetitive sequences of TTC from ancient bones found in Bali and East Nusa Tenggara, East Indonesia.

Methods: One of ancient bones who lived 2990 +/-160 BP from Lembata Island-Flores, Indonesia (code LL 1/5) and the one of ancient bones who lived Paleometal period derived from Semawang-Bali, Indonesia (code SMWV/III/1990). The DNA extraction was performed using a kit from Qiagen products and its TTC repeating pattern were seen with the method of direct sequencing.

Results: The inner part of the ancient bone from Lembata Island-Flores, Indonesia (code LL 1/5) was obtained by 13 repetitions TTC and the one derived from Semawang-Bali was obtained by 20 repetitions TTC. The different number of TTC repetitions have showed the different isolates of M. leprae between in the ancient bone from Lembata-Island-Flores, Indonesia and from Semawang-Bali, Indonesia.

Conclusion: The result towards of TTC. Its commonly show that 13X TTC motif was found of ancient bone from Flores, Indonesia. Whereas 20X TTC motif was found of ancient bone from Bali, Indonesia. If it was related to leprosy spreading in Indonesia. That alot of them were found in East Indonesia. Whereas in the middle area was few relatively and it West area, it was none relatively, except in Aceh. In historical, if it was indeed so leprosy always follows in human migration from Asia continent to Indonesia. So it shouldn’t empty space of leprosy in the middle area. In spite of it was estimated that also interrelated to the influences of Wallacea area, that covered Sulawesi, Maluku and Papua which have different environment like in West area excited.

P-127

Presentation Time: Tuesday 17/09/2013 at 10:30 – 10:40

Abstract Topic Name: History of Leprosy

Abstract: Chaulmoogra oil (CO) is extracted from seeds of several closely related trees in the genus Hydnocarpus, found in scattered areas in southeast Asia. CO entered Western medicine in the past 75 years, chaulmoogra has vanished from our formularies and very nearly from our memories. This presentation will review chaulmoogra: its botany, its use in traditional Asian medicine, its entry into Western medicine, and its place on the history, lore, art, and literature of leprosy.

Methods: Chaulmoogra oil (CO) is extracted from seeds of several closely related trees in the genus Hydnocarpus, found in scattered areas in southeast Asia. CO entered Western medicine in the past 75 years, chaulmoogra has vanished from our formularies and very nearly from our memories. This presentation will review chaulmoogra: its botany, its use in traditional Asian medicine, its entry into Western medicine, and its place on the history, lore, art, and literature of leprosy.

Results: To provide reliable oil for leprosy patients in the US and territorial Hawaii, the United States government decided to create its own chaulmoogra plantation. At this time, only a few remote hill tribes knew which trees produced the desired seed so the US Department of Agriculture sought a botanist for a chaulmoogra collecting expedition. They chose Joseph Rock, instructor of botany and Chinese languages at Honolulu College in Hawaii. Vietnamese by birth and sinhople by nature, Rock learned to speak several Chinese dialects as a youth and emigrated to Hawaii in 1907, where he gained recognition as an authoritative tropical botanist. In 1920, the USDA dispatched Rock to southeast Asia, where he traveled among hill tribes of Burma, Siam, and Assam for nearly 2 years before identifying which trees produced chaulmoogra seeds. Rock’s expedition through Southeast Asia and his early explorations of Tibet are described in Lamas, Princes, and Bigwigs by Michael Arias, (deceased) husband of Burmese Nobel laureate, An Son Su Kyi.

With Rock’s seeds, the USDA started a chaulmoogra plantation in Dahan’s rugged Waiale Valley. Within a few years, maturing trees provided enough seed to treat American leprosy patients in Carville and Kalaupapa. Soon the valley supplied much of the world’s CO and major pharmaceutical companies used Waiale seed to formulate new antileprotics. Treatment with CO was painful, however – up to 5ml was injected subcutaneously or intramuscularly daily for months. Many patients found this unacceptable and considered leaving their disease go untreated.

Arthur Dean, president of University of Hawaii and a distinguished biochemist, studied chaulmoogra’s properties and identified the chemical structures of its allegedly active components, chaulmoogin and hydnocarpin. There were several theories on CO’s mechanism of action but proper studies on its efficacy and safety were never conducted. Although in vitro investigations still uncover Mycobacterium leprae causative agent of leprosy, it is known as the only bacteria that cannot proliferate in vitro. Thus, it is predicted that M. leprae possesses the specific metabolic systems that are different from other bacteria. In this study, to elucidate the specific metabolism involved in pathogenicity of M. leprae, the metabolome analysis, which is a powerful tool for clarification of comprehensive metabolism, was performed.

P-143

Presentation Time: Tuesday 17/09/2013 at 10:30 – 10:40

Abstract Topic Name: History of Leprosy

Abstract: Mycobacterium leprae is a characteristic feature that the cell envelope is composed of complex molecules. Among them, glycolipids are abundantly present on the cell surface, and they are reported to be associated with pathogenicity of mycobacteria. On the other hand, the different number of TTC repetitions have showed the different isolates of M. leprae between in the ancient bone from Lembata Island-Flores, Indonesia and from Semawang-Bali, Indonesia.

Conclusion: The result towards of TTC. Its commonly show that 13X TTC motif was found of ancient bone from Flores, Indonesia. Whereas 20X TTC motif was found of ancient bone from Bali, Indonesia. If it was related to leprosy spreading in Indonesia. That alot of them were found in East Indonesia. Whereas in the middle area was few relatively and it West area, it was none relatively, except in Aceh. In historical, if it was indeed so leprosy always follows in human migration from Asia continent to Indonesia. So it shouldn’t empty space of leprosy in the middle area. In spite of it was estimated that also interrelated to the influences of Wallacea area, that covered Sulawesi, Maluku and Papua which have different environment like in West area excited.
SIGNIFICANCE OF SLIT SKIN SMEARS FACILITY IN A TERTIARY CARE REFERRAL CENTRE: TLM COMMUNITY HOSPITAL SHARING ITS EXPERIENCES FROM NATIONAL CAPITAL TERITORY OF DELHI

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Introduction: The National Capital Territory of Delhi is the fastest growing metropolis in the world with a population of 17 million (2011 census). It attracts a huge migrant population seeking for livelihood options from surrounding states which are endemic for leprosy. The migrant’s population are deprived of proper living conditions such as safe water, hygienic food, housing, sanitary toilets etc.

TLM community hospital was then established as drug delivery point in 1984; situated strategically in trans-yamuna region with a close proximity to Uttar Pradesh state border. Now the hospital has transformed into a busy community hospital attracting variety of skin, general and sizeable number of leprosy cases across the country. It is recognised tertiary care referral centre providing comprehensive care for those leprosy affected such as diagnostic facilities (smears, blood, molecular techniques), manage complications like reactions & ulcer, footwear and reconstructive services. TLM community hospital is the only centre where slit skin smears are available.

Methods: This is a descriptive, observational, and retrospective study in which hospital data on leprosy was analysed. All the suspects and those with cardinal signs were subjected to detailed physical examination (screening for patches and nerves), slit skin smears (SSS), Voluntary Muscle Testing (VMT) after obtaining due content from the patient; those cases that are doubtful were subjected to Histopathological Examination (HPE) as well. The smears were done from routine sites such as ear lobes, forehead, gluteal area plus one over the patch. The smears are fixed, stained, graded and reported following standard procedures. The data on new cases and their smear reports from the medical records department were analysed.

Results: The total numbers of new cases of leprosy detected over 5 yrs period (2008-12) were 1483. On an average 296 new cases have been detected annually. All the new cases were subjected to smear testing mandatorily. The average smear positivity rate was 31%, of which 15% showed bacteriological Index (BI) of 4+. In 2012 there is a 19% increase in smear positivity rate and 28%, rise in 4+ -BI cases on comparing the 5yr average. A subset of 680 (47%) patients had reactions at the first visit during diagnoses, of which 922 (36%) had T1R / neuritis and 158 (11%) had delayed rise in 4+ BI cases on comparing the 5-yr average. A subset of 680 (47%) patients had reactions at the first visit during diagnoses, of which 922 (36%) had T1R / neuritis and 158 (11%) had

Conclusion: A 1/3rd of the new leprosy cases detected were found to be smear positive. In the terminal phase of well managed national program (NLEP) would obviously show an increasing trend of smear positive MB cases among new cases. The following observations such high disability rate, high smear positivity rate, if of cases exhibiting lepra-reactions at diagnosis would infer delayed detection of new cases, hence to test new strategies to pick hidden cases early. A significant proportion of dermatological cases presenting as nodular lesions mimicking leprosy! Slit skin smears is an invaluable tool for the clinicians while encountering such cases, unfortunately it lost its importance since integration. It’s a simple useful diagnostic tool can be easily replicated in all tertiary care centres. It can be piggybacked wherever spulum microscopy of TB program is available.

P-152

Presentation Time: Tuesday 17/09/2013 at 10:40 – 10:50
Abstract Topic Name: Microbiology
Presentation Screen Number: 8
Presenter: Abraham Selveasekar

P-146

Presentation Time: Tuesday 17/09/2013 at 10:50 – 11:00
Abstract Topic Name: Microbiology
Presentation Screen Number: 8
Presenter: Thomas Gillis

SEMI-AUTOMATED PROTOCOL FOR PURIFICATION OF MYCOBACTERIUM LEPRAE USING THE GENTLEMACSTM DISSOCIACTOR

1Lab Research Branch, DHHS, HRSA, HSDB, NHLDP 2Lab Research Branch, DHHS, HRSA, HSDB, NDBP, Baton Rouge, LA, United States

Introduction: Since Mycobacterium leprae has not been cultivated on artificial medium, highly viable M. leprae for research purposes is propagated using a high dose athymic nude mouse footpad (MFP) model. This model consists of injecting 2 x 10^7 bacteria into both hind footpads and harvesting bacteria 6-7mth post infection. The current protocol for purification of M. leprae is based on making a homogenate of infected tissue using a hand-held homogenizer (HH). Although this technique produces viable M. leprae with yields of between 5 x 10^7 to 1 x 10^8/ mouse, it is tedious and time consuming. HH is especially difficult to perform when large numbers of mice are processed within a short time such as in vaccine and drug studies. Therefore the objective of this research was to develop a semi-automated protocol for purification of highly viable M. leprae from infected MFP tissues using agenteLACSTM Dissociactor(GM).

Methods: Athymic nude mice, 6-6mth post-infection with 3 x 10^7 M. leprae/footpad, were euthanized by CO2 asphyxiation. Feet were decontaminated in Betadine then rinsed in 70% ethanol. For the GM protocol MFP tissues were chopped using a disposable scalpel and added to a gentiMACSTM M tube containing10 ml RPMI-1640 + ampicillin 50 µg/ml (RPMI/Amp). Tissues were dissociated using the Protein 1 setting gentiMACSTM/Octo Dissociactor. MFP tissues from 8 mice were processed in 8 separate M tubefor 53 secs and cooled on ice 2 min. The process was repeated twice. M. leprae were also purified using the HH protocol. MFP tissuewes finely minced by hand for 3-5 min with fine curved scissors and homogenized in 10 ml of RPMI/Amp using a sterile glass HH for 5 min. Large tissue debris from both procedures were removed from homogenates using slow speed centrifugation (1000 x g, 2 min 25°C). Bacteria were pelleted from the supernatant fluids at 10,000rpm 30 min 4°C, resuspended in RPMI/Amp +10% FBS and incubated at 37°C for 2 hr for antibiotic treatment. Bacterial pellets were treated with 0.1 NaOH 8 min then washed x 3 in RPMI +10% FBS to remove residual tissue debris. Bacterial preparations were tested for: 1) microbial contamination using blood agar plates; 2) bacterial yield/mouse using acid fast staining; 3) viability using LIVE/DEAD BacLight TM Bacterial Viability Assay; 4) metabolic activity using radiospirometry; and 5) mouse tissue contamination using scanning electron microscopy (SEM).

Results: Bacterial preparations were free of microbial contaminants. SEM demonstrated that mouse tissue contamination was minimal in bacterial preparations from both protocols. In addition, yield, viability and metabolic activity of M. leprae from the GM protocol were comparable to that of the HH method. The GM efficiently processed the tissues from 8 mice in a single 7 min run without the need for prior tissue mincing or homogenization.

Conclusion: A novel semi-automated protocol for purification of M. leprae from MFP significantly increases the number of mice that can be processed at one time while reducing the need for expensive instruments and HHH which need to be decontaminated, cleaned and sterilized after each use. This is especially important when large numbers of mice are being processed for large scale vaccine or drug studies.

P-030

Presentation Time: Tuesday 17/09/2013 at 10:30 – 10:40
Abstract Topic Name: Molecular Biology
Presentation Screen Number: 8
Presenter: Abdi Rahim Al-Samie

RELAPSES AMONG LEPROSY CASES IN YEMEN: 10 YEARS OF OPERATIONAL REVIEW AND FIRST MOLECULAR EPIDEMIOLOGICAL ANALYSIS.

1DG, NLEP - Yemen, 2GLRA - Yemen, Taiz, Yemen, 3Global Health Institute Ecole Polytechnique Fédérale de Lausanne CH-1015 Lausanne, Switzerland, 4Global Health Institute Ecole Polytechnique Fédérale de Lausanne CH-1015 Lausanne, Switzerland, Lausanne, Switzerland

Introduction: Yemen has been known as a leprosy endemic country with a prevalence rate of 5 cases per 10,000 people but only 2 leprosy control sites (sanatoriums) operate in the country. MDT recommended by WHO was introduced in Yemen in 1982 after decades of dapsone monotherapy, but real leprosy control activities only started with the National Leprosy Elimination Program (NLEP) in 1989 after an agreement had been signed between the Ministry of Public Health and German Leprosy Relief Association (GLRA). In 2000, Yemen reached the goal of leprosy elimination according to the WHO global target.

Reported relapse is low (0.13-0.02) in the last 10 years, but potential relapse cases may have gone unobserved previously as the NLEP concentrated on case-finding and patient management. In 2012, WHO selected Yemen as a sentinel site for the MDT resistance programme, so screening of possible leprosy relapse cases then began as part of the global surveillance network. Samples were sent to the Global Health Institute, Lausanne, Switzerland for molecular diagnostic analysis.

Methods: For 6 samples, PCR amplification and sequencing has been performed to study the drug resistance loci in the rpoB, fabP1 and gyrA genes, and also to genotype the strains using SNP typing.

Results: Laboratory investigations on biopsy specimens from six suspected Yemeni relapse cases (with 1-2 years of MB-MDT in the past 7-15 years) were carried out. PCR amplification was successful with only three strains, while the remaining three smear negative cases yielded no amplification. No mutation was found in the rpoB, fabP1 and gyrA genes in these three cases indicating that either the relapse occurred with a drug sensitive strain or re-infection took place.

Conclusion: The genotyping results indicated that these samples belonged to SNP-subtype 1B, 1D and 2E, indicating a wide diversity of strains in Yemen. A SNP type 2 strain is consistent with our knowledge of such strains in the middle-east (e.g. 2F in Iran & Turkey). The presence of SNP type 1 strains could be a reflection of immigration from South Asian countries where these strains are prevalent.
P-031
Presentation Time: Tuesday 17/09/2013 at 10:40 – 10:50
Abstract Topic Name: Molecular Biology
Presentation Screen Number: 9
Presenter: Amanda Fontes

DISTRIBUTION OF MYCOBACTERIUM LEPRAE STRAINS IN PERNAMBUCO, BRAZIL.

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Introduction: Leprosy is a chronic infectious disease caused by Mycobacterium leprae. After sequencing the genome of this pathogen, numerous markers for genotyping and evaluation of the variability of the bacterial populations and for aiding transmission studies have been reported. The latter is difficult due the long period incubation of the disease and also the small amount of variation in bacterial genomic DNA. The discovery of variable number of tandem repeats (VNTRs) and short tandem repeats (STRs) allowed the detection of strain variation in areas with a high prevalence of leprosy. Another form of genetic polymorphism, namely single nucleotide polymorphisms (SNPs) elucidated aspects related to the spread of leprosy in the world.

Methods: In the present study, new cases of leprosy from Recife (n=97), the capital of the State of Pernambuco, and from 14 surrounding towns (n=20) were enrolled during 2012. Skin smear samples (SSS) were collected from lesional and other body sites and transferred onto two microscope slides: one for determination of bacterial index (BI) and another for strain typing. For the latter analysis the SSSs present on the slide were scraped, pooled and the DNA extraction was performed using Chelex 100. The genetic variability of 17 VNTRs was evaluated by Multiple-locus VNTR analysis (MLVA) using Fragment length analysis (FLA) while the SNPs were analyzed by PCR-RFLP and/or sequencing.

Results: Among the 117 samples analyzed, 75 were genotyped by SNP. In this analysis we observed the prevalence of genotype 4 (70.8%) followed by genotype 3 (20.8%) and genotype 1 or 2 (8.4%). Of the seven samples that demonstrated genotype 1 or 2, two (28.6%) were from Recife and five (71.4%) were from other cities in the state of Pernambuco. More samples must be analyzed in order to confirm eventual predominance of this genotype in other cities than Recife. By VNTR typing, 81 samples were positive for any genetic markers, including 5 where we could define copy number for 2, 4, 7, 9 or 11 VNTRs and 76 samples could genotyped for at least 13 VNTRs. Part of the samples that did not generate any VNTR copy number or SNP type (=18) demonstrated BI equal to zero at time of collection. Upon evaluation of VNTR variability, alleles for GGT, AC9, 6-3 e 21-3 were conserved in this study population while the AT dinucleotides (15 and 18) demonstrated the highest rates of allelic discrimination. When decreasing stringency for genotype similarly 6 groups of two isolates were identified. Three of these were composed by individuals living in the same or close political administrative regions (PARs) of Recife.

Conclusion: These results confirm the predominance of SNP 4 type in Recife but could be a feature limited to the State’s capital and needs further investigation. In addition, the presence of samples with similar genotypes according to VNTRs, even covering only 14% of all new leprosy cases reported in Recife during the period of sampling, could suggest the usefulness of fingerprinting to add to transmission studies in this region of Brazil.

P-032
Presentation Time: Tuesday 17/09/2013 at 10:50 – 11:00
Abstract Topic Name: Molecular Biology
Presentation Screen Number: 9
Presenter: Rewindra Turan Karl

SINGLE NUCLEOTIDE POLYMORPHISM BASED MOLECULAR TYPING OF M. LEPRAE FROM MULTI-CASE FAMILIES OF LEPROSY PATIENTS AND THEIR SURROUNDINGS TO UNDERSTAND THE TRANSMISSION OF LEPROSY

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Introduction: The exact mode of transmission of leprosy is not clearly understood however many studies demonstrated active transmission of leprosy around a source case. It is believed that transmission occurs by droplet infection through the discharge of bacilli from nose and mouth and also by direct contact between an infected person and a susceptible individual. We report here the role of environment in the transmission of leprosy. The objective of this study was to detect and compare Single Nucleotide Polymorphism (SNP) based molecular subtypes of M. leprae prevailing within multi-case families of leprosy patients and in their surrounding environmental sources to prove their role in transmission.

Methods: Families of five active leprosy cases with positive bacteriological index having contacts in their families were chosen from The Leprosy Mission hospital patient records in a high endemic area in Purulia, West Bengal, India. Intense clinical assessment of the contacts in each family revealed a total of 6 contacts manifesting cardinal signs of leprosy and 22 contacts without any signs and symptoms of leprosy. Slight skin smears samples were collected and AFB staining was performed for all. Along with these a total of 52 soil samples were also collected from different inhabited areas of their houses. DNA was extracted from slight skin smears and soil samples and M.leprae specific gene region rlep (1236bp) was amplified for PCR based detection and molecular typing of M.leprae was performed for all rlep PCR positive samples by SNP typing and confirmation by DNA Sequencing.

Results: We observed that the mean BI of all the 5 patients was 3+ and of the 6 contacts detected in the assessment was 2+. Slight skin smears of 5 patients and 6 out of total 28 contacts were PCR positive for rlep whereas 17 soil samples out of 52 showed presence of M.leprae DNA. SNP typing of M.leprae from all rlep PCR positive subjects showed SNP type 1 genotype. We could genotype 10 of the soil samples which also showed SNP Type 1 genotype. M. leprae DNA from the leprosy patients and the 6 contacts were further sub-typed and D sub-type was noted in all patients and contacts except in 1 contact where C subtype was identified.

Conclusion: Typing followed by sub-typing of M.leprae clearly revealed that either the contacts were infected by the patients or both patients and contacts had the same source of infection. It also revealed that the M. leprae type in the soil in the inhabitant areas where patients resided also was of the same type as that was found in patients. However, role of the contaminated soil in transmission is not yet clear. Further studies on determination of viable nature of M. leprae along with genotyping of soil and water samples near the patient’s habitation (environment) in such a situation could help in understanding the role of environment in transmission of leprosy.

P-081
Presentation Time: Tuesday 17/09/2013 at 10:30 – 10:40
Abstract Topic Name: Chemotherapy
Presentation Screen Number: 10
Presenter: Dr Jingping Shen

OBSERVATIONS ON EFFECTIVENESS OF UNIFORM MULTIDRUG THERAPY AMONG MB LEPROSY PATIENTS IN 4 YEARS AFTER STOPPING TREATMENT

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Introduction: Leprosy multidrug therapy for MB patients for one year recommended by WHO is a most strong regimen. The long term relapsed rate is still very low. If there was a possibility to short the course of treatment to half year is deserved to be studied. We carried out a UMDT study under the support of WHO from October 2003 to 2013 to value the effectiveness of Uniform multidrug therapy (UMDT) among MB leprosy patients in 4 years after stopping treatment.

Methods: Seventy nine MB leprosy patients were treated with 6 months’ of UMDT, then were followed up with clinical and bacteriological examination including investigation of leprosy reaction once year.

Results: Of 79 MB leprosy patients, their mean BI was 2.89±1.40 before treatment. The BI were declined to 0.97±0.71±0.39±0.21 at the first, second, third and fourth years follow up after stopping treatment, respectively. The rate of BI negativity was 36.7%, 48.1%, 68.4% and 84.8% at the same follow-up time. During study, there were 33 leprosy reactions with a leprosy reaction once year.

Conclusion: The effectiveness of UMDT among 79 MB leprosy patients during 4 years follow up was satisfying. It seems that there is no significant difference during 4 years’ follow up in BI negativity between UMDT and routine multidrug therapy as compared with other researches. However the further follow-up is still needed to investigate the relapse rate among these patients treated with UMDT
CAUSES OF DEATH AMONG PATIENTS OF CLINICAL TRIAL FOR UNIFORM
MULTIDRUG THERAPY FOR LEPROSY PATIENTS IN BRAZIL (U-MDT/CT-BR)

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Introduction: The causes of death in most patients with Hansen’s disease are the same as the rest of general population. Leprosy, the low lethality is classic, consensus enshrined in the assertive that the patient dies with leprosy and not because of leprosy. However, it is likely that there is an increase in mortality by the side effects of drugs used both in treatment and in leprosy reactional states, which is not always considered in filling of declarations of death.

Methods: Between February 2007 and February of 2012, 859 patients were included in the study, of which 20 died. We analyze aspects such as age at death, sex, clinical classification, Mortality of leprosy, use of medications for control of reactional states close to death, the presence of associated diseases and medications, in order to identify if leprosy and its complications were not or the probable cause of death.

Results: The median age at death was 57 years; 17 were male, 11 lepromatous leprosy and 08 borderline lepromatous and all used MDT/MB. In five patients deaths occurred during the MDT, 05 had reactions next to death, 07 were using corticosteroids and 05 thalidamide at the time of death. Among the causes of death listed on death certificates were the most frequent pulmonary thromboembolism and septic shock.

Conclusion: Our study suggests sub notification in the civil register of deaths related to leprosy, since the unsatisfactory fulfilling until errors in the diagnosis of the basic cause and/or the concomitant causes. The death certificates are incapable to offer specific information on the mortality of leprosy.

P-083
Presentation Time: Tuesday 17/09/2013 at 10:30 – 11:00
Abstract Topic Name: Chemotherapy
Presentation Screen Number: 10
Presenter: Marco Fioriano

ASSESSMENT OF THE FIXED DURATION MULTIDRUG THERAPY IN LEPROSY: A HISTOPATHOLOGICAL AND IMMUNOHISTOCHEMISTRY ANALYSIS

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Introduction: The assessment of the multidrug therapy (MDT) based in the immune cellular response is little reported. The presence of the M. leprae in the tissues is not necessarily followed by the local tissue reaction, and the presence of this reaction is not always related to the bacilli demonstration. The present study aims the assessment of MDT in leprosy analyzing the tecidual response and mycobacterial antigens by immunohistochemistry techniques prior to the start and after the treatment.

Methods: Twenty-eight patients with leprosy (11 female, 17 male) were included in the present study. Seven received multidrug therapy paucibacillary (PB) and 21 received multidrug therapy multibacillary (MB). All patients were submitted to skin biopsy for the diagnosis. A new biopsy was done at the end of the treatment or one month afterwards, at the same site and beside of the first biopsy. All of the 56 skin fragments were stained for hematoxilin-eosin and Ziehl-Neelsen staining and for immunohistochemical with antibodies anti-BCG, anti-CD4, anti-CD8 and anti-CD68. All these material were evaluated using a semi quantitative method. For the statistical analysis the Mc Nemar test, the Wilcoxon test and the qui homogeneity test were performed when necessary and p<0.05 was considered significant.

Results: There was a decrease in all of the parameters analyzed after the treatment in relation to before the treatment. The inflammatory infiltrate and the CD4+ cells showed a statistically significant decrease in both PB and MB after the treatment and we noticed a high quantification of this expression before the treatment in MB in relation to PB, but we did not observe statistical significance. As expected, we noticed a higher quantification of BCG+ cells in MB-leprosy in relation to PB leprosy before the treatment (p=0.009). After the treatment there was a general decrease of the CD4+ and BCG+ cells, but we noticed that some MB patients remained with a great presence of the BCG+ cells. The inflammatory infiltrate, CD8+ cells and CD68+ cells showed a general decrease after the treatment, but they did not show a distinct distribution regarding the clinical forms of the leprosy, before as well as after the treatment. When we analyzed the tecidual bacilli positivity for Ziehl-Neelsen stain (ZN) and the presence of BCG+ cells, before as well as after the treatment, we noticed that a great number of ZN negative patients showed BCG+ cells. Analyzing PB patients, 57.1% remained positive for mycobacterial antigens whereas among the MB patients, 73.7% showed positive results for this antigen after the treatment.

Conclusion: Direct demonstration of M. leprae in tissue could be considered a very important method for diagnosis as well as for evaluation of the therapeutic effectiveness in leprosy. Immunohistochemistry techniques using antibodies against Mycobacteria can increase the sensitivity for identification of antigens in the tissue sections. The presence of M. leprae in the tissue is not necessarily followed by the host reaction. The presence of CD4+ cells in the inflammatory infiltrate of leprosy is related to resistant forms (PB). After MDT, the T lymphocytes and macrophages decrease in different patterns. The CD4+ cells proportion in the infiltrate did not increase after MDT, indicating that there is a healing but not a modification of the individual immune response.

P-005
Presentation Time: Tuesday 17/09/2013 at 12:30 – 12:40
Abstract Topic Name: Best Clinical Practice
Presentation Screen Number: 1
Presenter: Dr Kiran Koduri

HOW TO SET UP PAINLESS SKIN SMEAR FOR AFB AT YOUR CLINIC

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Introduction: Skin smear examination for acid fast bacteria (AFB) is a simple, rapid and useful test for the diagnosis of leprosy. We propose modification with occasional inclusion of internal controls and regular use of occlusive dressing with local anesthetic to the smear sites. The improvements that we propose here would not only make preparation of skin smears for AFB easier but also the microscopic reading user friendly and consistent. It is easy for even untrained/ newly appointed technician to learn. It is uncomfortable and painful for adult patients and not well tolerated by the children to undergo slit smear procedure and often intimidating, resulting in non-compliance by patients. Our approach improves the conventional procedure and makes it painless, by using local anesthetic cream on skin smear sites. We also suggest a user friendly way to read and interpret the AFB smears of patients by incorporating occasionally as required additional control slides both positive and negative collected from voluntary donors with proper consent.

Methods: Our protocol is described below. The patient should be examined and then the sites for skin smear are chosen, one ear lobe is always included and the other two sites are from prominent patch or infiltration usually from the limbs. Adequate amount of anesthetic (e.g., lidocaine & lidocaine cream) is applied under occlusion at the selected sites. After thirty minutes the sites are cleaned with alcohol, the area is grasped between the thumb and forefinger of the non-dormant hand until the skin becomes very pale (1). This may not be possible in certain area like trunk and thigh and taking smear from such sites is more difficult than taking from the ear lobes. A 5 to 6 mm long and 3 mm deep incision is made with Bard Parker scalpel blade which is rotated 90 degrees, and used to scrape the cut surface of the tissue. The tissue fluid thus obtained is smeared on the slide, spreading in circular motion by the flat of the blade, to produce uniform moderately thick smear over the area of 5-6 mm diameter and allowed to dry. The slide is then gently flame to fix the smear. Freshly filtered Carbol fuchsin is poured on to the slide and kept for twenty minutes and washed well with distilled water. The slide is flooded with 5 % (v/v) Sulphuric acid (sometimes 1% H2O and 5 % v/v Sulphuric acid) and rinsed after 5 min to decolorize. The slide is flooded with methylene blue for 3 min for counterstaining and rinsed with water. The excess water is allowed to drain and the slide is dried at room temperature and examined under microscope along with the control smears.

Results: Total 70 cases of skin smear were done in the past 2 years. None of the patients complained of pain or discomfort. There was excellent correlation with the clinical presentation. The extra cost involved towards the anesthetic was around 30 dollars for all the cases.

Conclusion: The use of local anesthetic has made the taking of skin smear painless with good patient acceptance. This modification may be made where ever possible for the sake of patient comfort. We think Positive control will help learn in identifying AFB and also in checking quality of staining procedure. Negative control will help identify artifacts and avoid false positives. These controls can be used at regular intervals and also when the case depends solely on skin smear for AFB. Dermatologists and Leprologists in endemic areas should consider setting up in there clinic.
P-004
Presentation Time: Tuesday 17/09/2013 at 12:40 – 12:50
Abstract Topic Name: Best Clinical Practice
Presentation Screen Number: 1
Presenter: M. Maroja

PRESENTATIONS
ePOSTER

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Introduction: In 2011, a 35-year-old Bolivian man with end stage renal disease and a history of leprosy was undergoing extensive evaluation in preparation for kidney transplantation. A diagnosis of lepromatous leprosy had been made in 2007 during a work-up for recurrent epistaxis. At that time, biopsy tissue from his nasal septum showed globi of acid-fast bacilli, an unexpected finding, but the diagnosis of lepromatous leprosy was confirmed with biopsy tissue from a cutaneous nodule on his left hand.

Methods: During a review of the patient’s medical records, we noted that he had a tonsillectomy in 2006 to manage recurrent pharyngitis. The pathology report from that procedure described “hyperplastic lymphoid tissue with numerous colonies of actinomycetes”. We wondered if the colonies of actinomycetes, a normal commensal in the oropharynx, were perhaps lepra bacilli.

Therefore, we submitted the original tissue blocks to the National Hansen’s Disease Center for PCR and immunohistochemical stains, which were, indeed, markedly positive for M. leprae.

Results: A review of this case suggests that the diagnosis of lepromatous leprosy might have been made earlier if the pathologist who examined the tonsillar tissue had a higher index of suspicion – but the initial presentation of leprosy as oropharyngeal disease is exceedingly rare. In this presentation, we use our patient’s history, clinical examination, and histologic findings to detail the spectrum of early oropharyngeal involvement in leprosy.

Conclusion: Clinical inflammatory lesions in the nasal and oral mucosa are a feature of the natural history of untreated lepromatous disease – but it is rare that leprosy’s initial, diagnostic presentation is based on oropharyngeal disease. Early or subclinical involvement of the nasopharynx and oropharynx may be nonspecific and difficult to diagnose, and therefore, may initially go unnoticed. In general, detection of oropharyngeal leprosy usually occurs in patients with a known diagnosis of leprosy, whereas our patient presented with pharyngitis due to tonsillar leprosy several years before his diagnosis of leprosy was suspected. The usual sites of oropharyngeal involvement in leprosy include the hard and soft palate, tongue, gingiva, and uvula. While tonsillar involvement is extremely rare and usually in the setting of other clinical manifestations, our patient’s history shows that leprosy can initially present as tonsillitis or pharyngitis, often long before clinical manifestations of the disease appear elsewhere. The diagnosis can be made histologically by examining biopsy material of oropharyngeal tissues. Awareness and clinical examination of early or subclinical lesions of the nasopharynx and oropharynx may assist in earlier diagnosis and treatment of Hansen’s disease with subsequent prevention of associated medical complications.

P-007
Presentation Time: Tuesday 17/09/2013 at 12:50 – 13:00
Abstract Topic Name: Best Clinical Practice
Presentation Screen Number: 1
Presenter: Prof Mecienne Rodrigues

COMMITMENT OF THE TWENTY NAILS IN A PATIENT WITH LEPROSY: SIX MONTHS AGO, PATIENT COMPLAINED OF NUMBNESS IN LEGS AND INVOLVEMENT OF THE NAILS; CUTANEOUS LYMHPH SMEAR POSITIVE; HISTOLOGY: ZIEHL-NEELSEN ACID-Fast Bacilli Positive; Nail Plate Distrophic

M. M. Rodrigues 1,*, R. N. B. Vasconcelos 1, D. Takano 1, 2
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Introduction: Nail disorders are common in leprosy and attributed to a combination of factors such as neuropathy, trauma, vascular disorders and infections. It is estimated that 56% of paucibacillary patients and 87% of multibacillary patients have nail changes, of which the most common are: nail hyperkeratosis, onychogryphosis, onychorexis, micronychia, onychoanomaly, grooves Beau, onycholeion, melanonychia longitudinal and nail inverse pterygium. Despite differences bacteriological, immunological and pathological between tuberculoid and lepromatous leprosy, the nail involvement appears to be similar in the two poles due to neurological and vascular disorders present in both. In lepromatous pole nail involvement appears later in the disease course and the distribution is more asymmetrical and bilateral than in the tuberculoid.

Methods: For six months ago the patient complained of numbness in legs and posterior involvement of the nails of the fingers; on examination there was diffuse infiltration of the face and ears; madarosis, thickening of the left auricular nerve and oropharyngitis with involvement of 20 nails with onychorhexis, longitudinal grooves, pterygium and subungual hyperkeratosis. Cutaneous lymph smear; positive; whose nail bed biopsy result showed diffuse infiltrate composed of large cells with granular cytoplasm, sometimes sketching niidus. Ziehl-Neelsen coloring revealed numerous acid-fast bacilli, the nail plate showed signs of dystrophy.

Results: Initiated with a multibacillary multidrug therapy and there was regression of cutaneous infiltration and the oropharyngitis

Conclusion: This case presents clinical features lush with nail changes in leprosy rarer manifestation of onset of 20 nails and intense destruction of the nail plate, making important differential diagnosis with other dermatoses such as lichen planus nail, pachydermoperiostosis, mucocutaneous candidiasis and other neuropathies such as diabetes mellitus.

P-008
Presentation Time: Tuesday 17/09/2013 at 13:00 – 13:10
Abstract Topic Name: Best Clinical Practice
Presentation Screen Number: 1
Presenter: Maria Maroja

HISTIOT LEPROSY: A RETROSPECTIVE STUDY OF THE CLINICAL EVOLUTION OF PATIENTS DIAGNOSED IN MANAUS, BRAZIL FROM 1990 TO 2010

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Introduction: Leprosy is a important health problem in Brazil. In 2011, 33,995 new cases of Leprosy were diagnosed (detection rate of 17.6/100,000 inhabitants). In Amazonas State, 587 news cases were diagnosed (detection rate of 16.5/100,000 inhabitants). Among the news cases, 58 were in children (detection rate of 4.94/100,000 inhabitants) and 342 multibacillary forms (58,3%). Histio Leprosy is a rare variant of Lepromatous Leprosy, which is considered by many authors as a form of disease recurence in patients with drug resistance or allergism or acquiring the shape already with primary resistance. Other authors consider that may arise in patients with no prior history of leprosy or irregular treatment. Studies regarding this form of disease are rare. In Brazil, we have no data on the incidence of this clinical variant.

Our study aimed to study the epidemiological and clinical characteristics of patients with diagnosis of Histoid Leprosy. The evolution of the smear at the beginning and end of treatment and to verify the relapse rate among this cases.

Methods: We conducted a retrospective observational study of clinical, laboratory and epidemiological of patients with diagnosis of Histoid Leprosy and treated at Alfredo da Matta Foundation (FUMA) - Manaus, Brazil. The project was submitted to the Ethics Committee in Research of FUMA.

Results: 32 cases were diagnosed, 4 women and 28 men. The mean age of patients was 38 years. We evaluated the bacterial index and the degree of disability of patients at diagnosis and at the end of treatment, the percentage of leprosy reactions and the frequency of relapses.

Conclusion: The patientrespected well to treatment with multidrug regimens, however relapses were observed. This may be an indicator that studies be carried out in relation to drug resistance in this clinical form

P-012
Abstract Topic Name: Best Clinical Practice
Presentation Screen Number: 1
Presenter: Dr Viacheslav Tsemba

FEATURES OF LEPROSY PATIENTS WITH DIABETES MELLITUS

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Introduction: Occurrence in leprosy and diabetes mellitus (DM) lesions of the skin, liver, kidneys, eyes, nervous system, the formation of various ulcers are a required differential diagnosis between these two diseases (Schaller KF, 1971). On CD as a associated disease with leprosy pointed previously M. Singh et al. (1987) and M. Bergel (1998). According to our data, the prevalence of diabetes among leprosy patients exceed in 2.4 and 2.6 times the prevalence among residents of the city of Astrakhan and Russia in general, respectively (Tsemba VF, 2006).

Methods: The disease was studied in 40 patients with multibacillary (MB) form of leprosy with the accompanying CD. Comparison group: free choice of 40 MB patients with normal levels of glycated hemoglobin (HbA1c). Compared groups of patients were fully comparable by sex
and age, forms and duration of leprosy (p<0.05). The level of HbA1c was determined by a colorimetric thiobarbituric acid method (Flickinger et al., 1976).

Results: Manifestation of diabetes in 97.5% of cases occurred mainly in women (60%) with MB leprosy (80%), not older than 58.1±1.7 years old. In most patients (75%), the period of regression being before the appearance of clinical symptoms of diabetes was relatively short (12 years) and in 24.1%, of patients was less than 5 years. Manifestation of diabetes mellitus in 25% of patients were combined with active leprosy process and 90% of them had MB form of leprosy. Firstly only one patient (10%) had tuberculoid type of leprosy which later was transformed in MB against the background of diabetes. 40% of patients the manifestation of DM developed in the first year from the first time of its relapse. High and long prolog exacerbations as with ethylium nodosum leprosum (ENL) were presented before the clinical manifestation of DM (66%). Therefore prednisolone was prescribed to 39% of cases. Exacerbations of leprosy process were developed directly after the evident manifestations of DM in others (33.3%), accompanied by a worsening of chronic persistent hepatitis, chronic osteomyelitis, neuroparotic ulcers and leprosus neuritis in 22.5%, 32.5%, 15% and 12.5% cases respectively. In patients with DM absciallatory period (7.3±0.8 years) and histologic regression (10.3±1.5 years) occurred significantly later than in those of comparison group (p <0.001). Transformation of leprosy process in the descending leprosy spectrum occurred significantly more often (35%, p <0.01) in patients with concomitant diabetes mellitus. Despite the preventive treatment, diabetes increased the risk of relapse (55%, p <0.001). Affection of Liver and peripheral nervous system of leprosy patients with concomitant diabetes was observed in 80% and 90%, respectively. Thusly disabled neurogenic complications (85%) of leprosy process dominated whereas only 5% of patients had disturbance of skin sensitivity and amyotrophy. The combination of leprosy and diabetes significantly increased the risk of neuroparotic ulcers (70%) (p<0.001) in leprosy patients.

Conclusion: Prolonged course of the disease in leprosy patients with concomitant diabetes is characterized by a long period of bacterioscopic and histological activity, the frequent development of downstream transformation, ENL, relapses liver damage and disabled neurogenic complications which indicate the relationship of leprosy process with carbohydrate metabolism. Monitoring of carbohydrate metabolism in leprosy patients with concomitant diabetes can further evaluate the course of the disease and plan of treatment and preventive measures in leprosy complications.

P-013

Presentation Time:  Tuesday 17/09/2013 at 13:20 – 13:30
Abstract Topic Name:  Best Clinical Practice
Presentation Screen Number:  1
Presenter:  Dr Olga Mesniakina

USAGE OF SYSTEMIC ENZYME THERAPY IN THE COMPLEX TREATMENT OF CHRONIC HEPATITIS IN LEPROSY PATIENTS

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Introduction: Searches for new approaches, that might effect the pathogenesis of leprosy disease and possess high effectiveness and safety as well as capable of preventing or eliminating side-effects of the treatment, simultaneously decreasing drug load on organisms, are urgent for optimization of traditional methods of therapy. Usage of multi-enzymatic medicines became a novel approach in the treatment and prophylaxis of a number of the diseases, including infections. A total effect of exogenic enzymes is provided by a direct or indirect action of hydrolyses on the activity of the main human organs and systems through modulation of the work of internal enzymatic systems or through the antiproteases system, in particular a1-antitrypsin and a2-macroglobulin. Effecting different components of immune system, protease-antiprotease complexes provide “adequacy” and “proportionality” of immune response to aggressive influences. Experimental investigations also proved hepatoprotective activity of wobenzym. Taking into consideration all the said above the possibilities of systemic enzyme therapy in treatment of chronic liver diseases in leprosy patients should be of paramount importance.

Methods: With the aim of improving pathogenetic therapy of chronic hepatitis in leprosy patients the effect of wobenzym (Mucos Pharma GmbH Co) was studied. The medicine was administered according to the following scheme: 3 tabs x 3 times a day for a month.

Results: Against the background of the treatment administered a significant decrease in the levels of gamma-glutamyl transferase, triglycerides, and C-reactive protein was noted.

Conclusion: Taking into account a wide spectrum of biological effect of wobenzym, satisfactory results of its usage in a complex therapy of leprosy patients with hepatic damages, as well as its good tolerance and absence of side-effects it should be considered expedient to include this medicine in a complex of therapy of leprosy patients. Usage of systemic enzyme therapy seems to be an actual line towards improvement of treatment of leprosy patients with damaged liver and deserves further and more extended studies.

P-014

Presentation Time:  Tuesday 17/09/2013 at 13:30 – 13:40
Abstract Topic Name:  Best Clinical Practice
Presentation Screen Number:  1
Presenter:  Mr Manivannan Goonarajah

COST EFFECTIVE AESTHETIC PROSTHESIS FOR THE ABSORBED DIGITS DUE TO LEPROSY

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Introduction: The chronic nature of loss of nerve function especially sensation in hands and feet due to leprosy leads to repeated ulcer and absorption when neglected. The loss of the digits in limbs projects disease; cause stigma, psychological problems to patient and participation restriction. In addition, loss of digits in upper extremity especially thumb jeopardizes the hand function as it leads to loss of strength and grasp. Commercially available prostheses using silicon are available as artificial substitutes to restore natural appearance, there by social acceptance and participation. However, silicon made prostheses are expensive and leprosy affected person cannot afford to avail this service through it can improve the social acceptance. In this paper a latex prosthesis construction method is discussed with case study. The advantages, cost effectiveness and limitations are presented.

Methods: The Plaster of Paris is used to make the impression of the fingers and thumb. The plaster mould is immersed into the latex and kept for dry. After this process the shape is trimmed for the fit and color matching and artificial nail is incorporated. The prosthesis retention is by using adhesive. The advantage of the latex prosthesis is cost effective, easy fabrication.

Results: Case study 1 - 40 years old, carpenter from Allahabad district, presented with absorbed thumb. He had complete loss of sensation in his right hand. He had loss of thumb from MCP joint. He was concerned about loss of digit. Therefore, he was given latex thumb prosthesis. After prosthesis he was satisfied and felt confident as his hand appearance improved. Case study 2 - 16 years old, female patient presented with absorbed great toe. She was hiding her foot with shoes. She was given latex toe prosthesis. She felt good comfort with toe prosthesis and wearing sandals.

Conclusion: Latex Aesthetic prosthesis gives good cosmetic appearance and it is cost effective as compared to commercially available silicon prosthesis.

P-016

Presentation Time:  Tuesday 17/09/2013 at 13:40 – 13:50
Abstract Topic Name:  Best Clinical Practice
Presentation Screen Number:  1
Presenter:  Vijay Jain

CLINICOPATHOLOGICAL CORRELATION IN LEPROSY: 5 YEAR RETROSPECTIVE ANALYSIS IN A TERTIARY CARE CENTRE OF NORTH INDIA

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Introduction: Leprosy is a chronic granulomatous infection caused by Mycobacterium Leprae and is characterized by well-recognized pathological changes. Complex interaction among host-mycobacterium and its antigens produce distinct histopathological changes. Histopathological confirmation of leprosy diagnosis is an important tool for exact determination of the disease load in a given population. Further, correct clinical classification helps in determining the patients at risk of developing deformities and disabilities.

Methods: The study was undertaken to do histopathological correlation of skin biopsies in clinically diagnosed leprosy cases. Ridley Jopling classification was used for clinical categorisation. Skin biopsies of clinically suspected leprosy cases visiting the leprosy clinic, department of Dermatology, Venereology and Leprosy, PGIMS, Rohtak, Haryana (India) during January 2007 to December 2011 were analysed. Percentage of biopsy proven cases was determined and further sub categorisation was done.

Results: 76.64% (187) out of 244 cases had histopathologically confirmed leprosy 28 of the remaining 57 showed non specific chronic inflammatory infiltrate. 80% of the biopsy proven cases correlated with the clinical type. Clinico pathological concordance was highest for parasternal (98%) and lowest for borderine borderline (21%) leprosy.

Conclusion: Histopathology provides an early insight for disease process and has a central role in understanding the spectral concept of leprosy. Importance of skin biopsy in validating the diagnosis and thus predicting the outcome cannot be overlooked.
**CLINICOPHISTOPATHOLOGICAL CORRELATION IN HANSEN’S DISEASE: A STUDY OF 150 CASES IN SOUTH INDIA**

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**Introduction:** Analysis of different histological types of leprosy helps to correlate histological diagnosis with clinical diagnosis and to study uniformity of clinical and histological findings in diagnosis of leprosy. Clinical judgement and histopathological examination is required for early diagnosis and adequate treatment to make the patient non-infectious. But in some early and border line cases of leprosy it is difficult to label only on clinical basis. Hence histopathological examination is must for confirmation of diagnosis in doubtful cases of leprosy.

**Methods:** A retrospective study of 150 patients of Hansen’s disease at a medical institute in Karnataka, south India between the year 2008 to 2011 was done.

**Results:** Out of 150 patients studied the male to female ratio was 2.3:1 and clinically 80 patients were in BT spectrum (53%), 32 in BL (21.3%), 25 in LL (16.6%) and 13 in TT spectrum (8.6%). Skin smear was done for all cases, bacteriological index was supportive in according to the spectrum of the disease. Histopathological study was done in all 150 cases, out of which 65 cases (43.3%) had histopathological correlation of spectrum. BT spectrum had the maximum correlation of 53.3% followed by BL (21.3%), LL (16.6%) and least with TT (8.6%). Since BT being the most common clinical spectrum and having classical clinical features, it had the highest histoclinicopathological correlation. Inadequate history, prior false knowledge about the disease to the patient and errors in clinical examination could lead to wrong diagnosis of spectrum of Hansen’s. In case of solitary hypopigmented patch sometimes be mistaken for the TT spectrum along with above mentioned factors.

**Conclusion:** Hansen’s disease is a chronic granulomatous disease with dynamic spectrum of disease. Clinician must do detailed examination and mandatory histopathological correlation of the spectrum with l/e faraco stain along with skin smear before the start of MDT. This will help in determining the spectrum of the disease, proper monitoring of response to treatment during follow up, also determining the upgrading or downgrading of the disease and to prevent the complication associated with particular spectrum of the disease.

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**LEPROSY AMONG MIGRANT WORKERS: ENSURING PROPER TREATMENT**

Y. A. Alquabbi 1, 2

1German Leprosy Relief Association, Taiz University, Taiz, Yemen
2WHO’s Global Leprosy Strategy for 2011–2015 adopted by 44 Leprosy Programme managers in New Delhi, India in April 2009 highlighted increasing migrant populations as workers and marginal populations living in slums, the diversity of health care providers and lack of coordination among them. The major focus within urban areas however, should be on improving the health services for marginal people living in the slums and migrant workers inside the same country who do not have the same conditions of life as in their native residence.

**Methods:** Migrant workers are populations who left their native countries or residence, because of poverty, methods of living (nomads) or political instability, to live and work in other countries to support their families. Migrant workers can also be those people moved inside their own country from one region to another with the same suffering as the migrant workers migrating outside their countries. In their new residences they are subjected to different conditions that effect their health situation including poor levels of hygiene, unsanitary working and living conditions, nutritional and structural barriers to health services. There is also a social belief that migrant workers bring with them diseases from their countries into the countries they work in; this belief led some countries to control the migrants rather than control the diseases. When it comes to health problems with diseases accompanied by stigma migrant workers suffer more than physical health problems, they are also subjected to ostracism and in some countries termination of their work and even deportation.

**Conclusion:** Fortunately or unfortunately there is no free significant migrant worker movements between countries in the EMR, neither is there high prevalence of leprosy in the countries of the region. However the migrant worker movements are substantial inside the territories of the same country and between countries which is a challenge for the national leprosy control managers to ensure regular MDT for their leprosy patients.

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Leprosy is still a major problem in Liberia and the Leprosy elimination target has not been reached in Liberia. There is evidence of pockets of hidden leprosy cases in Liberia, especially in 5 counties. The performance of the county officers on leprosy needs to be improved and there is a need to increase public awareness on early signs of leprosy and increase index of suspicion among health workers in all OPDs. Orientation training plans for continuing sensitization of health facility staff for increasing their awareness on Leproepsy.

China’s Guizhou Qiannan Leprosy Pop and Survivors Living Situation Investigation

M. Gu 1, 2

1Qiannan Center for Disease Control and Prevention, Duyun Guizhou, Qiannan, China

Introduction: Qiannan guizhou province in southern China, covering an area of 26197 square kilometers and a population of 4.092 million. There are 12 county (city). History of leprosy in guizhou province has a long time. The leprosy prevention and control work began in the early 1940s, after the 1990s, for a variety of reasons cause the prevention and control of quality to drop, in order to correctly evaluate the local leprosy disease burden condition, We in April 2008 to April 2009 made a special survey, hope for the future leprosy prevention strategy adjustment provide scientific basis.

Methods: Collect the relevant data of epidemic situation, relevant epidemiological analysis. At the same time inventory survey to all registered in guizhou over the leprosy patients, According to the current status of the leprosy questionnaire sends the leprosy patients abnormal residual form e-investigation.

Results: For the period 1987-2009, a total of 1132 people found that leprosy cases, percentage is 11.7% of the population, male female male ratio is 1:1.7. The patients were currently on leprosy treatment register, 208 (88.3%) were Multibacillary (MB), 11% (30) were Children. Grade 2 disability was 4%. There also seems to be gross under reporting, as each spontaneous survey carried out continued to yield unbelievable high number of new leprosy cases; majority being MB cases. There was Low Multi drug therapy (MDT) facility coverage of the counties which ranged from 1% to 3.4%. Most counties visited have only one or 2 facilities with capacity to diagnose and manage leprosy cases. The mode of detection for leprosy cases were self report (45%), referral and 20% by survey. The interval between appearance of first symptom and accessing health facility for diagnosis averaged of 9 years (ranging between 3-16 years). The case was poor case holding and a high default from treatment. Default from treatment was 66.4%, of all patients. The major reason adduced for default included long distance, poor road network and low MDT facilities coverage. However, MDT drugs were available in all facilities expect one. The drug supply at all levels will last for 3-5 months.

Conclusion: Leprosy is still a major problem in Liberia and the Leprosy elimination target has not been reached in Liberia. There is evidence of pockets of hidden leprosy cases in Liberia, especially in 5 counties. The performance of the county officers on leprosy needs to be improved and there is a need to increase public awareness on early signs of leprosy and increase index of suspicion among health workers in all OPDs. Orientation training plans for continuing sensitization of health facility staff for increasing their awareness on Leproepsy.

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The Leprosy Situation in Liberia: The Need for Urgent International Action.

A. Awe 1, 2, C. Cooper 1, J. Moses 1, O. Daniel 1


Introduction: Liberia is one of the countries in the world that have not reached the global elimination target of less than 1 case per 10,000. Leprosy is still a major health problem in Liberia. Leprosy therefore is an endemic disease in Liberia. The overall objective of the study was to evaluate the Leprosy National Leprosy Control in terms of the trends and progress towards reaching the Leprosy Elimination goal, assess MDT drug supply, availability and utilization, and proffer appropriate recommendations.

Methods: A review of the National leprosy data trend according to counties and health facilities was carried. Identify high leprosy prevalence counties and possible areas of hidden leprosy cases. A total of six out of the 15 counties in Liberia were studied from the July 3 to 12, 2012. These counties were Montserrado, Grand Bassa, Cape Mont, Margibi, Nimba, and Borg counties. Fourteen facilities were visited, the Central Medical Store and facility drug stores. In each facility, the leprosy treatment cards, registers and quarterly reports were reviewed. MDT drug stock and supplies were also reviewed at National, County and health facility levels. There were interviews with the officer in charge (OIC) of the health facilities, TB/Leprosy facility focal persons, TB/ Leprosy Nurse AIDS, Community Volunteer Workers and Leprosy patients. There were also interviews with international partners supporting the leprosy control in the country.

Results: The Leprosy prevalence rate was 1.7/10,000. New leprosy cases was 662 (19/100,000 case detection rate). Limited access of population to MDT service (44/522) %, facility coverage. High children proportion of 14.3% among new cases and 85% MB proportion among the newly diagnosed cases. MDT facility coverage was 44/522 (8%). In the 11 facilities visited, 274 leprosy patients were currently on leprosy treatment register, 208 (88.3%) were Multi-bacillary (MB), 11% (30) were Children. Grade 2 disability was 4%. There also seems to be gross under reporting, as each spontaneous survey carried out continued to yield unbelievable high number of new leprosy cases; majority being MB cases. There was Low Multi drug therapy (MDT) facility coverage of the counties which ranged from 1% to 3.4%. Most counties visited have only one or 2 facilities with capacity to diagnose and manage leprosy cases. The mode of detection for leprosy cases were self report (45%), referral and 20% by survey. The interval between appearance of first symptom and accessing health facility for diagnosis averaged of 9 years (ranging between 3-16 years). The case was poor case holding and a high default from treatment. Default from treatment was 66.4%, of all patients. The major reason adduced for default included long distance, poor road network and low MDT facilities coverage. However, MDT drugs were available in all facilities expect one. The drug supply at all levels will last for 3-5 months.

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Presentation Time: Tuesday 17/09/2013 at 13:20 – 13:30
Abstract Topic Name: Epidemiological Surveillance
Presentation Screen Number: 2
Presenter: Venkata Ranganadha Rao Pemmaraju

ESTIMATES OF PERSONS WITH GRADE 2 RESIDUAL MORBIDITY ATTRIBUTABLE TO LEPROSY

R. Babu 1, S. Peri 1, R. Rao PV 2

1The Leprosy Mission Trust India and LEPRA India, Karigiri, Vellore, 2LEPRA, Hyderabad, India

Introduction: Leprosy is considered to be a public health problem and is feared by the community because of impairments which very often lead to the handicap of social ostracism. Earlier attempts were made to estimate the load of disability in the community by complex models.

Methods: A simple model with the minimal available data was worked using MS Excel for estimating disability load in India. This could be used to set priorities and planning essential activities of disability care.

The following assumptions are made while developing the model:

- Data on G2 disability among new cases detected is available from 1985 – 2011.
- Backlog cases of G2 disability at 1985 are not known. Backlog cases of G2 disability at 1985 were assumed roughly in the model.
- Yearly Mortality among G2 cases is assumed to be uniform during 1985-2011 and given a single estimated value.
- This estimate has to be taken keeping in view the age distribution of the disability cases and Crude Death Rates of the respective years.
- No new disability cases are occurring among the existing leprosy cases that are treated. It is also assumed that Gr-2 disability cases are not cured of disability.
- MS Excel template was constructed in such a way that by changing the input parameter values the final estimate of disability cases is immediately calculated and visible.

Results: It is assumed that the backlog disability cases at the beginning of 1985 in India was 500,00 and Annual average mortality for this group is 15 per 1000 per Year. Through this model it is estimated that persons with Grade 2 disability due to leprosy in India could be 737,215 at the end of the year 2011.

Conclusion: This Model (in Excel) can be applied to any country if the data on new cases, Grade 2 disabilities and Crude Death Rate of the respective years are available for 25 to 30 years. This Model (in Excel) can be applied to any country if the data on new cases, Grade 2 disabilities and Crude Death Rate of the respective years are available for 25 to 30 years. This Model (in Excel) can be applied to any country if the data on new cases, Grade 2 disabilities and Crude Death Rate of the respective years are available for 25 to 30 years. This Model (in Excel) can be applied to any country if the data on new cases, Grade 2 disabilities and Crude Death Rate of the respective years are available for 25 to 30 years. This Model (in Excel) can be applied to any country if the data on new cases, Grade 2 disabilities and Crude Death Rate of the respective years are available for 25 to 30 years.
Results: During 40 years of observation 228 cases of relapses in 186 patients with leprosy were detected, that comprise 17.6% of the total number of the patients registered.

Relapses were observed in 83 males and 103 females among the patients with MB leprosy: 162 and with PB leprosy – 24. Single relapses were observed in 131 patients, repeated relapses were observed in 55 cases. In 25 patients relapses were noted before 1970th. Two relapses were observed in 45 cases, three - in 7 and four in 3 patients. Maximal number of relapses in men fell the age period from 30 to 50 years old, and in women - from 50 to 70 years old. Minimal age of a patient with relapse was 17 years, maximal – 89 years. Out of the total number of relapses early ones developing in the first 10 years after completion of the main course of antileprosy therapy and discharge for ambulatory treatment comprise 45.3%, and late relapses, developing in 10, 20, 30 and more years – 54.7%. In 46.6%, relapses were caused by inadequate treatment. Then follow common cold diseases (16.6%), psychic traumas (12.6%), alcoholism (10.3%), poor living conditions (5.7%), pregnancy (2.9%) and in 5.7% cases causes were not stated. 70.6% of relapses fell on 70s of the 20th century (1970-1979) when leprosy patients were given mainly mono therapy with sulfones and use of MDT in Russia was in an embryonic state. In the 80th (1980-1989) the number of relapses decreased 2.9 times (from 161 to 55 cases) that is 6.5% of total number of patients and 24.1% of total number of relapses. Beginning from the 90th years (1990-1999) and in 2000-2009 only single cases of relapses were detected (7 and 5 cases per each ten years) comprising 1.2 and 1.4%, of total number of patients and 3.1 and 2.2% of total number of relapses, correspondingly. Decrease in number of relapses evidently is connected with a significant decrease in morbidity and total number of the patients under surveillance (from 1056 to 235) as a result of effective control measures as well as of wide usage of combined therapy.

Conclusion: A possibility of late relapse remains for many years from the moment of completion of the main course of leprosy therapy. Based on the above results we may conclude that in leprosy not only long terms of stationary and ambulatory treatment are necessary but also dispensary surveillance, especially for MB leprosy, the most dangerous from the epidemiological point of view, is extremely important. Long dispensary observation practiced in Russia allows to prevent relapses, especially late ones, leprosy development in contacts as well as to eliminate leprosy root.

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Presentation Time: Tuesday 17/09/2013 at 12:30 – 12:40
Abstract Topic Name: Epidemiological Surveillance
Presentation Screen Number: 3
Presenter: Maria Angela Trindade

EVALUATION OF THE EFFECTIVENESS OF THE FAMILY HEALTH STRATEGY ON THE ENDEMICITY OF LEPROSY - REVIEW OF THE LITERATURE REVIEW AND PRESENTATION OF THE STATE OF SÃO PAULO, BRAZIL

M. A. B. Trindade 1, 2,*, T. Rosa 3, M. L. Carvalho 1, T. Fragata 1, S. Ferreira 1, S. Venancio 4

1Pos Graduacao, Instituto de Saude, 2Dermatologia, LIM56, Hospital das Clinicas, FMUSP, ESF on the detection of leprosy in the State of São Paulo, Brazil, suggesting a protective effect.

The data are consistent with the literature, which showed the positive impact of

The reorganization of Primary Care (AB) in Brazil is being conducted by Family Health Strategy on the detection of leprosy in the State of São Paulo, Brazil. Objective: To evaluate the effectiveness of the Family Health Strategy on the detection of leprosy. The evaluation of the effectiveness of the ESF on indicators of endemic leprosy in São Paulo, Brazil consists of indicators, grouped by lines of care: Women's Health, Child Health, Adult Health, Oral Health, Mental Health (reason other reports) and Leprosy. The outcomes of the study consist of indicators, grouped by lines of care: Women's Health, Child Health, Adult Health, Oral Health, Mental Health (reason other reports) and Leprosy.

Methods: Based on epidemiological and ecological studies in theoretical models were constructed assuming the availability of information in secondary databases. The main independent variable is the coverage of the ESF in each of the 645 cities and covariates were classified into three dimensions: context of demographic, socioeconomic and health system. The outcomes of the study consist of indicators, grouped by lines of care: Women's Health, Child Health, Adult Health, Oral Health, Mental Health (reason other reports) and Leprosy.

Results: The evaluation of the effectiveness of the ESF on indicators of endemic leprosy in São Paulo for 2001 showed higher detection in counties where the population has coverage of 50% FHS, controlling for the effects of socioeconomic and demographic variables (IRR set (95%) 1.115 (1007-1233) p 0.036). The coastal and agricultural villages in Indonesia have different characteristic due to the water source type. Inhabitants who live in coastal area mostly fisherman and they use daily water supply from well that located inside the house, which is relatively brackish water. While those who live in agricultural area mostly farmer who use water from well outside the house, which is relatively fresh water. The aim of the study is to explore the existence of M.leprae in the water and soils from village’s houses of the two different environmental areas.

Conclusion: The data are consistent with the literature, which showed the positive impact of ESF on the detection of leprosy in the State of São Paulo, Brazil, suggesting a protective effect when the population has increased coverage of FHS. Interestingly, this effect was observed after controlling for social development indicator (IPRS) and population size of the municipalities.

Conclusion: Given the importance of the performance of the AB in identifying and monitoring cases of leprosy is critical to conduct studies that assess the effectiveness of ESF on outcomes related to this condition.
soil samples, it revealed that only 2/36 (6%) from coastal area compared to 2/54 (4%) from agricultural area (no statistically different, p>0.5).

Conclusion: The existence of M. leprae in the water environment of coastal area was more frequent than the agricultural area in leprosy endemic villages of Indonesia. The existence of M. leprae in the environment could be just as contamination from leprosy patients but also as a re-minor source of infection. Since M. leprae is obligate intra-cellular organism, it can only survive a few hours outside the cell. More investigation is needed to clarify this finding, since leprosy prevalence is higher in coastal areas of Indonesia, compared to agricultural areas.

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**Presentation Time:** Tuesday 17/09/2013 at 13:00 – 13:10  
**Abstract Topic Name:** Epidemiological Surveillance  
**Presentation Screen Number:** 3  
**Presenter:** Dinar Adiarty

**THE ROLE OF FREE LIVING AMOEBA AS AN ENVIRONMENTAL HOST FOR MYCOBACTERIUM LEPRAE**

D. -. - Adiarty 1,*, R. Wahyuni 1, -. Iswahyudi 1, C. R. S. Prakoeswa 1, 2, I. Agusni 1, 2, S. Izumi 1

1Leprosy Study Group, Institute of Tropical Disease, Arliangga University, Surabaya, 2Dermatology and Venerology, Medical Faculty Arliangga University, SURABAYA, Indonesia

**Introduction:** East Java is a province with the highest new case detection in Indonesia (35% of all cases). Like other leprosy problems in every part of Indonesian province, this province has an interesting phenomenon; it is that the leprosy endemic area is not spread evenly. There are many endemic areas spread mainly in the northern coastal region and Madura Island other than the southern part. Based on various epidemiological studies in Indonesia, the suspicion arises that many individuals are infected with leprosy bacilli in the absence of an infection source, occurred partly due to the indirect transmission which is from environment. It is possible for intracellular mycobacteria such as the members of the M. tuberculosis complex and M. leprae could survive as long as they can get the potential environmental host. All intracellular mycobacteria hide themselves inside the macrophage cell and resistant to phagosomal process. Amoeba has been known as protozoa which morphologically have some similarities with macrophage cell, especially in the phagocytic process and surface receptor system. It will indicate the role of Amoeba especially the free living type become the non human factor for transmission of the disease not only from patients. Free living amoeba is the protozoa that live commonly in the water of tropical environment like East Java Province, Indonesia. The Acanthamoeba sp is one of the free living amoeba, which is possible now to detect by molecular biology methods. The main purpose of study is to analyze the existence of Free Living Amoeba (FLA) in water samples from environment that contains M. leprae, especially the water source from endemic leprosy area in northern part of East Java.

**Methods:** Ninety water samples were taken from wells in one of districts in Northern coastal of East Java, they were collected from two villages, one is from the coastal area and the other is from rural area. All isolates were DNA extracted by QiaGen and amplified by PCR using specific primers in Mycobacterium leprae (RIFLEP3 sequence X17133) and Acanthamoeba sp (18S DNA in region E23-2′ and E-23-6′). Ziehl-Neelsen staining is also performed to these samples to study the morphology of the protozoa and Acid Fast Bacilli.

**Results:** From PCR analysis, 22 samples were positives in Mycobacterium leprae (22/90 or 24%) and the letality rate was highest in the state of Rio Grande do Sul, with 15.4 deaths per 100 000 inhabitants.

**Conclusion:** The elucidation of the transmission mode of leprosy is essential to establish drastic strategy to prevent infection. Although the common concept of leprosy transmission is that the disease may be caused by direct contact with leprosy patients, subclinical stage of leprosy cases. Some epidemiological variables, such as age, sex, nutritional status, parental income, living in the house, contact history, length duration of contact and type of contact will be analyzed using the Logistic Regression statistical test.

**Results:** After serological test for anti PGL-1 antibody, 28 (29.5%) of these children were sero (+) or in subclinical stage of leprosy. Results of statistical analysis revealed that only two factors: contact history with leprosy patients (p = 0.021) and parental income (p = 0.036) showed the influence of risk factors of having the subclinical stage of leprosy.

**DEATHS ATTRIBUTED TO LEPROSY IN BRAZIL (2000-2007)**

A. Rosendo Dos Santos Ramos 1,*, E. Ignotti 1,*, S. Ferreira 1

1Nursing, University of Mato Grosso, Caeore, Brazil

**Introduction:** Researches on mortality and lethality in leprosy are rare in Brazil when the disease is considered as basic cause of death. In Brazil 1890 deaths were registered leprosy from 2000 to 2007. In Mato Grosso, an endemic disease in the Brazilian Amazon were registered 129 deaths from leprosy in the same period.

**Methods:** Epidemiological transversal study of deaths registered and available in the database of the Mortality Information System. We selected the deaths where leprosy was the basic cause, or as one of the causes of the death. We calculated the correlation between the mortality and lethality rates from leprosy and the detection rate. For the detection rate we used data from the Information System of Notified Diseases.

**Results:** It was possible to notice a higher proportion of deaths among people over 60 years old (56.8%), the illiterate people (27.6%) and in males (72%). The frequency of deaths from leprosy as one of the causes, or as basic cause, did not change over the years (an average of 520 and 236 deaths by year). The general rate of detection of leprosy was positively correlated with the lethality rate of the disease, and negatively correlated with the lethality rate. The lethality rate from leprosy was highest in the state of Mato Grosso, with 4.8 deaths per 100 000 inhabitants and the lethality rate was highest in the state of Rio Grande do Sul, with 15.4 deaths per 1000 new cases.

**Conclusion:** This study indicates that leprosy is characterized as basic and associated cause of deaths in Brazil, especially in male individuals, elderly and illiterate people.
**Trends in Leprosy Research: A Bibliometric Analysis of MEDLINE Publications During Pre-MDT and Post-MDT Period**

S. Govindarajulu 1,*, V. Kanagasabapathy 1, V. Lal 1, P. Vijayarukman 1, R. Jayaram 1, S. Murugesan 2

Abstract Topic Name: Epidemiological Surveillance

**Methods:**
- Water samples were collected in the village with high leprosy prevalence in Indonesia.
- Smear samples stained by Ziehl-Neelsen method were examined by microscope.
- Conventional PCRs targeting RLEP sequence and 16s rRNA gene were applied to detect M.leprae DNA, bacillary number was quantified by Real-Time PCR for RLEP sequence. Reverse-Transcription PCR (RT-PCR) was applied to prove the existence of live bacilli by detecting 16s rRNA in the water as a possible infectious source of leprosy.
- Results: Of 147 samples, acid fast bacilli were observed in 40 samples, 53 samples and 85 samples were positive for the PCR to amplify a fragment of 16s rRNA gene and RLEP gene respectively. Real-Time PCR results showed 102 samples contain bacilli and number of the bacilli varied from 2 to 3,620/20 ml. RT-PCR showed 17 out of 54 samples contain 16s rRNA, hence excising of live bacilli has been indicated. The mean temperature of the RT-PCR positive waters was optimal temperature, 29.9±0.6°C, for the growth of M.leprae.

**Conclusion:**
The results suggest infection of the bacilli from water as a reservoir in environment.

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**Presentation Time:** Tuesday 17/09/2013 at 13:50 – 14:00

**Abstract Topic Name:** Epidemiological Surveillance

**Presentation Screen Number:** 3

**Presenter:** Srinivas Govindarajulu

**Trends in Leprosy Research: A Bibliometric Analysis of MEDLINE Publications During Pre-MDT and Post-MDT Period**

S. Govindarajulu 1,*, V. Kanagasabapathy 1, V. Lal 1, P. Vijayarukman 1, R. Jayaram 1, S. Murugesan 2

1QLRI India, 2TN MGR Medical University, Chennai, India

**Introduction:** Mapping the published leprosy literature provides an opportunity to assess patterns of peer-reviewed publications and characterize the trends over time in leprosy research. The aim of the study was to analyse the global trends in publication of leprosy articles through a retrospective analysis applied to a bibliographic database of MEDLINE.

**Methods:**
MEDLINE database (Silver platter) was used to retrieve articles on leprosy in free-text format for the period 1966 to 2010. Using bibliometric analysis, we studied the trends in publication of articles related to leprosy with regard to the publication type, journal category, journal name, language and the country of publication. The multi-disciplinary scatter and segregation of the published literature over different time periods reflecting diverse strategies (pre-MDT, MDT and post-elimination periods) was analysed.

**Results:**
Over the past 12 decades (1890 to 2010), a total of 18,849 leprosy-related articles had been published across 2,008 journals. These journals were published in 37 different languages from over 95 countries of the world. Original papers constituted 80% (n=15057), case reports 8% (n=1560), review articles 4% (n=831) and the remaining were in the form of comments, letters, editorials, congress and meeting reports, monographs, news and interviews. Forty-four percent (n=8268) of the articles were published in the pre-1980 period, during the period of monotherapy. The latter period marked a shift in the focus of research from bacteriology to clinical and pharmacological themes. Since the achievement of the global elimination of leprosy in the year 2000, only 12% articles were published. Majority of the articles (75%) were in English; the proportion of English language articles further increased by 11%; post-global elimination. One-third of the articles had been published in specialised leprosy journals like Leprosy Review, International Journal of Leprosy and Other Mycobacterial Diseases and Indian Journal of Leprosy. Leprosy; Lancet, New England Journal of Medicine and Bulletin of the World Health Organization had published less than 1% of all leprosy articles. This difference was statistically significant (p<0.01). The impact factor for specialised journals in leprosy had come down in the post-elimination period (Leprosy Review from 1.3 to 1.04 and International Journal of Leprosy and Other Mycobacterial Diseases from 1.1 to 0.22).

**Conclusion:**
The results indicate that the publications in leprosy have considerably reduced over the years after global elimination was declared. As programmatic and epidemiological challenges continue to hinder the achievement of ‘Enhanced Global Strategy for Further Reducing the Disease Burden Due to Leprosy by 2015’. Researchers working in high-burden countries need to conduct relevant research and ensure dissemination of the findings through publications. This would be critical to provide evidence base for strategic and policy-level changes in an endeavour to achieve the vision of a ‘World without Leprosy’.

**P-229**

**Presentation Time:** Tuesday 17/09/2013 at 12:30 – 13:00

**Abstract Topic Name:** Prevention of Disability

**Presentation Screen Number:** 4

**Presenter:** Linda Lehman

**Physical Disability in People Affected by Leprosy After Treatment Completion**

1Laboratorio de Dermatomiologia, UFPF, Marituba, 2UER Dr. Marcello Cardia, SESPA, BELEM, 3Campus Castanhal, UFPF, Castanhal, 4Departamento de Dermatologia, Faculdade de medicina, USP, Rio de Janeiro, 5Instituto de Ciencias Biologicas, UFPF, BELEM, Brazil

**Introduction:** Physical disability is the main problem of leprosy. Despite multidrugtherapy (MDT) success in treating leprosy, it is known that about 25%-50% of patients may have some nerve damage and develop physical disabilities, classified by WHO disability grading (DG) as 0 for normal sensation, no visible impairments, 1 for impaired sensation, no visible impairments, or 2 for visible impairments/deformity. From 2004 to 2010 Brazil registered 21.7% of the cases as DG 1, and 7% as DG 2, while in Pará State 15.3% of the patients were diagnosed with DG 1 and 5.1% with DG 2 on the diagnosis of leprosy.

**Methods:**
In order to investigate physical disabilities in MDT cured patients, we examined the sensory-motor functions of 517 people affected by leprosy reported from 2004 to 2010 in eight hyperendemic municipalities of the Brazilian Amazon Region, correlating our findings with epidemiological and socio-economic features, and comparing with data found at the National Information System for Notifiable Diseases (SINAN). Patients’ home visits were planned with clinical assessment, simplified neurophysiological evaluation and determination of DG, together with an interview about their demographic and socio-economic characteristics.

**Results:**
DG 1 was found on 16.2% and DG 2 on 12.4% of the patients evaluated. It was found a statistically significant correlation between multibacillary (MB) forms and DG 1 or 2 (p<0.001); physical disability and males (p<0.001); impairment and age over 40 years-old (p<0.001). More than half (50.5%) of the cases did not have a BCG scar, and this was correlated to higher ages (p<0.001). MB cases (p<0.001), and disability (p<0.005). Finally, although SINAN showed only 5.6% of DG 2, we found 12.4%, during our visits.

**Conclusion:**
The occurrence of physical disability was predominant in MB patients, males, >40 years-old and no BCG scar, all important risk factors for developing disability. The differences of DG found in SINAN in contrast to our study suggest worsening of the sensory-motor functions after discharge from MDT, indicating the importance of monitoring these patients for years after finishing MDT treatment.

**Financial support:** CNPQ, DEDIT, Brazilian Ministry of Health, CASES, FAPESPRA, SESPRA, UFPF.
LEPROSY REFERRAL CENTRES THROUGH OUTREACH CAMPS: A PILOT INITIATIVE

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Introduction: Leprosy or Hansen’s disease affects skin and peripheral nerves predominantly. The patients can develop disfigurements or visible deformities from sensory impairment or ‘silent neuritis’ condition which may occur before, between or after the treatment by multidrug therapy (MDT). Therefore, early detection of sensory deficit has been of great benefit in a vigorous preventive role. This study was designed to compare the result of sensory evaluation in multibacillary leprosy patients using Semmes-Weinstein monofilament (SWM) and conventional monofilament technique used in Thailand and to observe the course of neuritis detected during the study period.

Methods: Seventy multibacillary leprosy patients from Hansen’s clinic at Department of Dermatology, Siriraj Hospital and Leprosy clinic at Ratchapracha Samasai Institute were enrolled during their follow-up visits between May and December 2012. All of them were evaluated for sensory impairment with monofilament test by both SWM and conventional technique used in Thailand for two consecutive periods, the first time at the day of recruitment and the next follow-up visit. The patients’ demographic data, family history of leprosy, type of leprosy, nerve function assessment (sensory impairment with monofilament test by both SWM and conventional Thai technique were not statistically different for both ulnar and median nerve distribution (p=1.00), but the results were statistically different for posterior tibial nerve sensation (p<0.001).

Conclusion: There was no difference between SWM and conventional technique which were routinely used in Thailand for the evaluation of sensory deficit in leprosy patients. Using SWM with less tested points can minimize the time spending on each case; hence we encourage the application of SWM technique in our leprosy patients to lessen the time in each follow-up period and to improve the follow-up guideline for better services of leprosy patients in Thailand.

RESULTS: About two-third of the patients in this study were male (71.4%) and a mean (SD) age was 43 (15.75) years with a range of 19-85 years old. Approximately 80 percent of the patients were during the treatment or surveillance period. The interpreted results from SWM and conventional Thai technique were not statistically different for both ulnar and median nerve distribution (p=1.00), but the results were statistically different for posterior tibial nerve sensation (p=0.001). However, the result of both technique excluding the heel area for posterior tibial nerve sensation were the same (p=1.00). Moreover, twenty eight (40%) patients who mentioned of numbness at either palms or soles were correspondent with impaired sensory function detected by SWM technique (p=0.014).

Conclusion: There was no difference between SWM and conventional technique which were routinely used in Thailand for the evaluation of sensory deficit in leprosy patients. Using SWM with less tested points can minimize the time spending on each case; hence we encourage the application of SWM technique in our leprosy patients to lessen the time in each follow-up period and to improve the follow-up guideline for better services of leprosy patients in Thailand.

METHODS: The study was conducted in 3 tribal districts of Maharashtra and Chhattisgarh states in India during 2012. 40 PHCs were identified as having under utilization of referral services that are linked to 8 LRCs established at secondary level of the GHC system. ALERT-INDIA had organized 31 LORCs in these PHCs by trained GHC staff under the supervision of trained leprosy (NLEP) staff. 492 peripheral staff of PHCs had mobilized leprosy patients needing specialized services for complications and disabilities for the camp by home visits. This includes leprosy patients with disabilities living in PHC areas and not availed quality leprosy services at LRCs as well as leprosy patients with risk factor for developing new nerve function impairment (among new cases detected in the past 5 years).

RESULTS: 1368 leprosy patients were assessed and managed by 160 trained PHC staff during the camps. 84 new cases were diagnosed among 171 suspects referred to the camps. 662 leprosy cases with “risk” factor were assessed for nerve function impairment. 80 leprosy patients with lepra reactions were assessed and managed. 484 cases with disabilities (Grade 1 & 2) were assessed and provided appropriate services. 703 leprosy patients were linked to respective LRCs for sustained referral services. Following successful outcome of the camps at the PHC level referral action plans were prepared for sustaining referral link between client and health facility at the secondary level.

Conclusion: Capacity building of peripheral health staff and preparation of time bound referral action plan were the core elements of outreach camps to ensure an effective & result oriented referral system.

This study demonstrated increased participation of PHC staff in promoting referrals for sustaining leprosy services. Primarily it provided access to the clients for timely and quality services for leprosy related complications. It also optimized the opportunity for the PHC staff to learn and attend to the needs of clients and refer only those who need services at the secondary level.

In effect, this study has enabled the persons affected by leprosy with necessary information and clarity on the specific services offered at the primary and secondary levels of the GHC system. LRC Out-Reach Camp (LORC) does help to develop time bound, result oriented action plan for an effectiveleviable referral system.

PREVENTION OF D IsABIlITY

P-234

Presentation Time: Tuesday 17/09/2013 at 13:00 – 13:10

Abstract Topic Name: Prevention of Disability

Title: PHYSICAL DISABILITY AND SOCIAL PARTICIPATION IN PLEOPLE AFFECTED BY LEPROSY AFTER MULTIDRUG TREATMENT

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Introduction: Leprosy is considered one of the most disabling diseases nowadays. It is estimated that 3 million people have physical disabilities around the world. Deformities cause functional limitations, social exclusion and stigma with psychological and social impact. Multidrug therapy was the main control measure for leprosy in the past 3 decades and allowed patients the discharge of treatment, but without consider deformities, reaction episodes and sensorial-motor impairments. The aim of this investigation was to describe the level of social participation and disability in people affected by leprosy after world health organization multidrug therapy.

Methods: Cross-sectional, observational, clinic-epidemiological study in Nova Iguaçu County in Rio de Janeiro with treated patients that receive the diagnosis of leprosy between the years of 1997 to 2006. The initial sample was 2179 cases that receive leprosy diagnosis during this period and 1080 cases met in inclusion criteria for discharge after multidrug therapy and disability grade. The final sample was 225 individuals that were assessed using disability grade of eye, hand and foot score from world health organization and social participation scale.

RESULTS: The individuals have 16 and 101 years old, mean age of 56.12 (SD: 17.34 years), 55.6% (125) were female, 39.9% (91) had less the 8 years of school learning and 66 (28.9%) was white. 55.3% (125) had multibacillary classification and 44.4% (100) paucibacillary with predominant borderline form in 40.4% (91). The disabilities in accordance with disability grade of eye, hand and foot score from world health organization were 60.9% (48.0% grade 1 and 12.9% grade 2) and social restriction was observed in 24.9%, using social participation scale.

Conclusion: The level of disability in this sample was elevated and the variables age, schollar education level, leprosy classification and multibacillary treatment were relevant for disability grade. The level of social participation was medium to elevate with crucial relevance for clinical form and multidrug treatment. Physical disability was associated with social participation.
A POPULATION BASED REGISTRY- A POSSIBLE STRATEGY FOR LEPROSY IN URBAN AREAS?

Å. S. John 1,*, D. Pitchhamban 2, D. Gope 3, P. Gope 4, M. Mahato 4

Abstract Topic Name: Prevention of Disability

Introduction: India accounts for 55.5% of global leprosy, amounting to a total of 0.83 lakh cases recorded in the country, as on 1st April 2012. In West Bengal, the Prevalence Rate (PR) was 1.30/10,000 in 2010, reduced to 0.92/10,000 in 2011, but increased to 1.08/10,000 in 2012 which is of great concern as it is higher than the national PR of 0.68/10,000. Urban leprosy is acknowledged as a difficult problem due to various reasons- large migrant populations living in unhygienic conditions, lack of proper health infrastructure, multiplicity of health service providers with little coordination etc… Kolkata, the third largest metropolis in India is classified as a moderately endemic zone with prevalence rate of >1 per 10,000.

Aims: The aim of the study is to describe the profile of leprosy in a selected urban area to help in assessing the magnitude of leprosy and designing effective strategies for leprosy control.

Methods: Kolkata in West Bengal, India has a population of 44.86,679 divided into 15 boroughs and 141 wards. This study was conducted in 9 wards from 4 boroughs selected by stratified random sampling to include geographically and socio economically different populations. All the health service providers in the study area, including hospitals, clinics and private practitioners were identified and visited to find out whether they treated leprosy. Those which did were requested to share their information regarding leprosy cases during the period April 2011 to December 2012. A predesigned format for Population Based Leprosy Registry (PBLR) was given to all the participating centers. All patients visiting for the first time were included and care was taken to avoid duplication of patients. Information about Patient name & address, type, WHO Disability, was collected. The data was collected weekly, compiled and analysed on SPSS.

Results: The health service providers treating leprosy in the study area included 2 government medical college hospitals, 1 government hospital, 1 ward clinic, 1 referral hospital and 134 private practitioners. During the period under consideration 2436 cases were registered for leprosy treatment, 1793 in TLM, 605 in the government hospitals, 38 in the ward clinic, and 98 cases with private practitioners. The majority of the patients registered were adult males 1865(77%); while adult females were 476 (20%), male children 58(2%) and female children 37(1%). 2198 (90%) cases were Multi Baccilary leprosy (MB); 138 cases of Pauci Baccilary leprosy (PB) which is of great concern as it is higher than that in MB PALs (40.58%); and the rate was significantly high among those patients with leprosy reactions (78.25%). The common clinical manifestations of disabilities were claw fingers followed by thumb paralysis, wrist drop. About 2/3 of patients had obstinate feeling and joint stiffness. 1951 hands with disabilities could be corrected by surgical operations and 73% of these PALs have no indications for surgical operations and 73% of those PALs who need the rehabilitation have no confidence to wards rehabilitation.

Conclusion: This study concluded that there is a high proportion of hand disabilities, particularly in single hands, among active and cured leprosy patients. The prevalence is significantly different among patients with differences in delay of diagnosis and treatment, occurrence in leprosy reactions and leprosy types. 73% of those PALs who need the rehabilitation have no confidence to wards rehabilitation.
mainly of rural villages and towns adjoining Mumbai in Thane district of Maharashtra and to ascertain the impact of services during the period from 2008 to 2012.

Methods: The Prevention of deformity and care programme (PDM) was strengthened in the rural areas of Thane district. Though basic health delivery structures are in place in the district specialized disability care service for leprosy patients with deformity is often lacking. In this background, BLP is offering services through its supervisory mobile units and by engaging local community volunteers. Field campaigns undertaken to identify the existing disabled patients (treatment completed and under follow up) in these villages with emphasis on grade II disability (PPD of deformity patients 29 / 10,000) and the assessment of deformity status was undertaken. Special records of disability assessment of individual patients are maintained. Village wise maps to indicate location of patients distributed is maintained for planning delivery of services and follow up. Disability care services like splints, MCR footwear, dressing kits, gaggles, foot drop splints have been provided depending on the type of deformity. Wax baths have been provided in these extension units for facilitating wax therapy. Clinical impact of services was carried out to ascertain status of deformity in patients with only grade II deformity receiving services using a simplified proforma.

Results: It was observed that in hand maximum improvement was found in 17 (31.5%) patients with abduction deformity and in 25 (46%) patients with mobile claw hand and in foot in 84 (37%) patients the ulcer healed well while in 27 patients with foot drop no change observed. Plantar ulcers were healed after undergoing plantar fascia release in 11 patients. The use of collagen dressing, which has been found to be effective in the patients. Follow up of the patients is under process and identification of new patients in other PHCs of the taluka will be undertaken depending on availability of resources.

Conclusion: We believe that ascertaining the disability burden and distribution is a must to plan field based services to practice POD care and services in the community and reasonable justice can be done to patients provided disability is identified early and services offered with regular follow up for compliance to improve the quality of life of patients.

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QUALITY OF LIFE AND ITS DOMAINS IN LEPROSY PATIENTS AFTER NEUROLYSIS

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Introduction: Progressive damage to peripheral nerves are the most important consequences of leprosy leading to physical impairments, deformities, limitation of physical activities, social exclusion and low quality of life. In practice, corticosteroids are used to prevent or to treat nerve damage in leprosy. Surgical nerve decompression is reserved for nerve abscess and unresponsive or contraindications to corticosteroids. The present study aimed to describe quality of life of leprosy patients submitted to neurolysis.

Methods: This is a descriptive, cross-sectional study which was carried out in a referral hospital in Rio de Janeiro, Brazil. The population of the study was composed by patients who had completed multidrug therapy (MDT) and were submitted to neurolysis surgery in the last five years. The evaluation of quality of life were collected using the WHOQOL bref, tested and validated to be used in this setting. Data were collected using a simplified proforma.

Results: In the last five years, 33 patients were submitted to neurolysis with a total of 61 nerves operated. The results showed that most patients were male (69.7%), with elementary schooling (51.5%), with income lower or equal one minimum wage (70.6%), multibacillary (87.9%) of the patients. The lower score in psychological domain was in the facet about thinking, 13.29±2.79. In regards to the facets of physical domain, dependence on medicinal substances and medical support (11.47±2.11), psychological (13.29±2.79) and social relations (15.03±3.66). WHOQOL bref, the worse quality of life was observed on physical domain (11.0±3.56) followed by psychological (13.29±2.79) and social relations (15.03±3.66).

Conclusion: The team identified 21 new leprosy cases during the campaign. The major challenge was monthly follow up. The district team took up the task of regular monthly follow up and supply of MDT for patients under treatment. The team identified eleven new leprosy cases during follow up visits and most of these new cases were self reported to the team during IEC. The programme officer and the NGO were very keen to organize one more campaign with the help of health staff, women self help groups, local volunteers and students from a social science college. They were divided into five groups to cover five mountains over one week. The team identified eighteen new leprosy cases in second campaign. It was not the end for reporting new cases, a few more new leprosy cases were identified during the follow up visits. A total of 72 new leprosy cases were identified, among them 28 were Multi-bacillary leprosy cases and 34 of them had deformity at the time of diagnosis.

Conclusion: The case study illustrates how different stakeholders can work together to reach the underserved population and overcome the hidden challenges in leprosy.

P-045

LEPROSY AMONG INTERNALLY DISPLACED YEMENIS IN URBAN AREA OF YEMEN

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1NLEP, NLEP-Yemen, Taiz, Yemen

Introduction: In Yemen the political unrest and military conflicts in Abyan governorate resulted in internally displaced people (IDP) of around 100,000 citizens in the year 2011 to Aden and Lahj governorates. The IDPs gathered in schools used as temporary camps, the medical provider in these camps were unable to detect leprosy cases. This study aimed primary to detect and treat early leprosy cases among skin diseases cases in IDPs.

Methods: We conducted a rapid skin survey for IDPs in their camps in May 2012. A team of leprosy medical supervisor and 2 leprosy coordinators had visited 84 IDPs schools during 3 weeks period. Announcements in the camps were done to encourage inhabitants of the IDPs camps with any skin disease and any other symptoms relevance to neuritis to report and met the team in the camp for examinations and treatment. Detected cases were registered and treated, data were analyzed.

Results: 1529 IDPs in 84 camps were examined. Among them 19 new leprosy cases were detected and treated with MDT (21%), MB, 79%, PB, 5%, DIG2, 32%, F, 42%, children), 27 old leprosy cases were evaluated among them 2 MB cases were retrieved with MDT. Tinea (corporis et capitis) represent 17% of examined skin cases while scabies was the second common skin disease with 16% of all reported cases.

Conclusion: This leprosy case detection is high (19%) comparing with the annual case detection of 2 per 100,000 population in Yemen. Indicate that active case detection is still too important in special groups like IDPs, neglected groups ... etc.
DIAGNOSIS AND TREATMENT OF LEPROSY REACTIONS IN INTEGRATED SERVICES - THE PATIENTS' PERSPECTIVE IN NEPAL.

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Introduction: Leprosy care has been integrated with peripheral health services, away from formal programmes. This includes the diagnosis and management of leprosy reactions, which cause significant morbidity. We surveyed patients with leprosy reactions at two leprosy hospitals in Nepal to assess their experience of leprosy reaction management following integration to identify any gaps in service delivery.

Methods: Direct and referral patients with leprosy reactions were interviewed in two of Nepal’s leprosy hospitals. We also collected quantitative and qualitative data from clinical examination and case-note review to document the patient pathway.

Results: Seventy-five patients were interviewed. On development of reaction symptoms 39% presented directly to specialist services, 23% to a private doctor, 17% to a district hospital, 10% to a traditional healer, 7% to a health post and 4% elsewhere. Those who presented directly to specialist services were 6.6 times more likely to start appropriate treatment than those presenting elsewhere (95% CI: 3.01 to 14.45). The average delay between symptom onset to commencing corticosteroids was 2.9 months (range 0 - 24 months). Obstacles to early presentation and treatment included diagnostic challenge, patient lack of knowledge and the patients’ view of health as a low priority. Forty percent received corticosteroids for longer than 12 weeks and 72% of treatment included diagnostic challenge, patient lack of knowledge and the patients’ view of health as a low priority. Forty percent received corticosteroids for longer than 12 weeks and 72% of treatment included diagnostic challenge, patient lack of knowledge and the patients’ view of health as a low priority. Forty percent received corticosteroids for longer than 12 weeks and 72% of treatment included diagnostic challenge, patient lack of knowledge and the patients’ view of health as a low priority. Forty percent received corticosteroids for longer than 12 weeks and 72% of treatment included diagnostic challenge, patient lack of knowledge and the patients’ view of health as a low priority.

Conclusion: This study demonstrates that specialist services are necessary and still provide significant support within an integrated health system approach towards the diagnosis and management of leprosy reactions.

HYPOTHYSIS-THYROID AXIS AND AGING OF LEPROSY PATIENTS

E. Balybin 1, 2

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Introduction: Length of life of treated leprosy patients in Russia is higher as compared with general population (Dukov VV, 2011). Mechanism of such a phenomenon is not clear hitherto. The aim of our investigation was to study functional state of one of the most important regulatory system of human organism, namely hypothysis-thyroid axis, in the process of aging of patients with leprosy. 157 patients with lepromatous leprosy at different stages of the disease process were under investigation. All the patients were divided into 3 groups: I – 96 patients aging up to 59 years, inclusively; II – 23 patients aging from 60 to 74 years (elderly age); III – 11 patients aging from 75 years and more (senile age). 47 donors at the age of up to 60 years served as controls.

Methods: With using radioimmunological methods levels of such hormones as thyroid stimulating hormone (TSH), triiodothyronine (T3) and thyroxin (T4) were determined in blood plasma. Radiometric method of the whole body (Lyssy FM., Kalantard K.D., Palinkashi D.G., Varentsov Yu.M., 1968) was used to study the contents of organic iodine-131 in extravascular tissues (in the body). The data obtained were statistically processed according to Excel program (“Microsoft”, USA).

Results: Independently from age an significant decrease of the contents of organic iodine 131 in the body (2.0±0.2; 1.6±0.1; 1.4±0.1 % correspondingly in age groups I, II and III) was found out in leprosy patients as compared with donors (2.6±0.2%, 2.8±0.2%). Average level of TSH in the age group I (56,9±4,2 pmol/l) was significantly higher as compared with donors (29±13,3 pmol/l). Since the contents of organic iodine-131 in the body reflects a concentration of thyroid hormones in it the detected increase seems to be a homeostatic response of hypotalamic-hypophysial system towards a deficit of these hormones. TSH level in the age groups II and III of the patients did not significantly differ from such in donors. This fact suggests some inadequate reaction of hypophysis in patients older than 60 years and goes into a concept by V.Dilman and W.Dean (1992), who connected aging with progressive loss of sensitivity of receptors of hypothalmus-hypophysial system towards a deficit of these hormones. TSH level in the age groups II and III of the patients did not significantly differ from such in donors. This fact suggests some inadequate reaction of hypophysis in patients older than 60 years and goes into a concept by V.Dilman and W.Dean (1992), who connected aging with progressive loss of sensitivity of receptors of hypothalmus-hypophysial system towards a deficit of these hormones.

Conclusion: We found deviations in thyroid status in leprosy patients. These deviations seem to inhibit aging process of organism tissues since thyroid hormones, according to O.I. Urazova. and others (2008), modulate intensity of free radical oxidation.
**P-051**

**Presentation Time:** Tuesday 17/09/2013 at 13:20 – 13:30  
**Abstract Topic Name:** Leprosy Control – Urban and Special Populations  
**Presentation Screen Number:** 5  
**Presenter:** Priya Diwaker

**CHILDHOOD LEPROSY: FACTS REVEALED**

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**Introduction:** Leprosy, a disease as old as mankind, has been a public health problem in many developing countries and among children; it reflects the disease transmission and general health status of the community.

**Methods:** A total of 30 cases were selected from patients attending Babaji and Chigetari Hospital, J.M. Medical College in Davangere in South India. The upper age limit was kept to be 14 yrs and the total span of study was from January 2012 to January 2013. The diagnosis of leprosy was made on the basis of clinical examination, slit skin smear and skin biopsy after taking informed consent from the parents and after excluding ptilayrisis versicolor, ptilayrisis alba, viligo and polymorphic light eruption.

**Results:** The total incidence of childhood leprosy in our study was found to be 12.19%. The ratio of boys to girls was 2:1. The children were in the age group of 0-14 yrs. The highest incidence was seen in the age group 11-14 yrs which was 66.66%. The youngest were 2 patients, of 4 yrs old each, one with BT Hansen and the other with BL Hansen. A positive contact/family history was obtained in 5 cases (16.66%). 26 patients were pursuing their education while 4 were school dropouts. Most of the cases belonged to low socio economic status and came from a rural background. According to the Ridley Jopling Classification, 70% cases were of BT spectrum, 13.33% cases of BL spectrum, 6.66% cases of LL spectrum and 3.33% of TT spectrum. In addition there were 2 cases of pure neurtic Hansen. Most of the patients presented with hypopigmented patches and the common sites involved were upper limb in 46.66%, followed by lower limb in 23.33%. Type I reaction was seen in 4 patients (13.33%) and Type II reaction in 5 patients (16.66%). Deformity was seen in 4 patients (13.33%). Commonest nerve involved was ulnar nerve (52%) followed by radial nerve (46.66%). One case was of an HIV positive boy with retropositive parents who developed BL Hansen. Out of 30, 26 patients were on MDT, 2 had completed MDT and 2 were defaulters. Compliance to treatment was found to be over all better in children.

**Conclusion:** Childhood leprosy has always been a challenge to the doctors. There is a need for early diagnosis and prompt management as response to treatment is comparatively better in children than adults thus preventing the development of deformities. In a resource poor setup better understanding of the clinical presentation of Hansen's in children is of utmost importance. Our study helps to know the incidence, spectral distribution and correlates the impact of positive contacts. All these factors in turn help in reducing the mental, emotional and physical burden to the family and society.

**P-054**

**Presentation Time:** Tuesday 17/09/2013 at 13:30 – 13:40  
**Abstract Topic Name:** Leprosy Control – Urban and Special Populations  
**Presentation Screen Number:** 5  
**Presenter:** Dr Zhong Liu

**THE ANALYSIS OF LEPROSY CONTROL FOR SIXTY YEARS IN WUHAN**

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1Wuhan Institute of Dermatology, Wuhan, China

**Introduction:** To discuss the leprosy epidemic trend for nearly sixty years and the condition of the disabled patients who were still alive in Wuhan

**Methods:** To collect the patient’s data from the archive in Wuhan Institution for Prevention and Management of Leprosy, a disease as old as mankind, has been a public health problem in many developing countries and among children; it reflects the disease transmission and general health status of the community.

**Results:** There were 3441 leprosy cases who were confirmed to have leprosy in clinical from 1952-2012 in Wuhan, 596 cured patients were alive until now; it included 138 in-patients lived in leprosy province. Using a statistical method to analyzing these data.

**Conclusion:** 16th – 19th September 2013 • Brussels

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Communicable disease control department, Raj-prachasamasai institute, Bangkok, Thailand

P-375
Presentation Time: Tuesday 17/09/2013 at 12:30 – 12:40
Abstract Topic Name: Detection and Treatment of Reactions
Presentation Screen Number: 6
Presenter: Thawert Sittiwakin

TYPE 1 LEPROSY REVERSAL REACTION TREATED WITH TOPICAL TACROLIMUS AS AN ADJUNCTIVE THERAPY.

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Introduction: Type 1 reversal reaction is characterized by the development of acute inflammation in skin lesions or nerve or both. Borderline leprosy is a strong risk factor for occurrence of type 1 reaction. Type 1 reaction is delayed hypersensitivity reaction. It is triggered by γ via Th1 lymphocytes and cells from reactional lesions express the pro-inflammatory cytokines during type 1 reaction. Type 1 reaction is frequently recurrent and can lead to further nerve damage and side effects of corticosteroids. The patients with high cytokine responses are more likely to relapse with the hepatic s and intestinal system, as well as most antiretrovirals. This fact may decrease effectiveness and increase the risk of development of resistance of HIV regimen of antiretroviral drugs used, necessitating the use of alternative schemes without the presence of rifampicin. Further, there is a high risk of worsening of hepatitis in patients with comorbidity. This is partly because of rifampicin be a potentially hepatotoxic drug. Likewise, a certain percentage of patients on the drug have elevated liver enzymes between three and five times, also presenting effects of corticosteroids. The patients with high cytokine responses are more likely to relapse after withdrawal of corticosteroid therapy.

Tacrolimus ointment has been used to treat a variety of inflammatory dermatoses. Tacrolimus binds to a specific cytoplasmic immunophilin (FKBP12). Tacrolimus inhibits calcium-dependent signal transduction pathways in T-cells, thereby preventing the transcription and synthesis of IL-2, IL-3, IL-4, IL-5 and other cytokines such as granulocyte-monocyte colony stimulating factor (GM-CSF), TNF α and IFN γ. Tacrolimus has also been shown to inhibit the release of inflammatory mediators from skin mast cells, basophils and eosinophils.

Methods: A case report of a 81 year-old Thai woman with Borderline Tuberculoid Leprosy and reversal reaction on right cheek without nerve involvement. She was treated with Rifampicin, Dapsone and was started on Prednisolone 30 mg/day. After tapering dose of Prednisolone, the reversal reaction flared up again. The patient was given a therapeutic trial with 0.1% topical Tacrolimus ointment twice a day application along with Prednisolone 30 mg/d.

Results: The result was an improvement of reversal reaction. The patient’s condition was maintained by topical tacrolimus therapy and Prednisolone was tapered to zero over a period of 12 weeks without a flare-up of the reversal reaction.

Conclusion: Tacrolimus is an immunomodulatory and immunosuppressant agent that inhibits T-cell activation by blocking the action of calcineurin. This results in inhibition of the transcription of several cytokine genes which decrease in the production of interleukin IL-2, IL-3, IL-5, GM-CSF, TNFα and IFNγ. The inhibition of the transcription and release of cytokines can explain the beneficial effect of Tacrolimus ointment. Tacrolimus may be used along with corticosteroid to prevent recurrence of Type 1 reaction.

This is the report of the use of topical Tacrolimus as an adjunctive therapy in the treatment of Type 1 leprosy reversal reaction.

P-118
Presentation Time: Tuesday 17/09/2013 at 13:00 – 13:10
Abstract Topic Name: Leprosy and NTDs
Presentation Screen Number: 6
Presenter: Dr Isabela M. B. Goulart

PREVALENCE OF INFECTIOUS COMORBIDITIES IN DIAGNOSIS OF PATIENTS WITH LEPROSY

J. C. C. Soares 1, 2, E. C. Ribeiro 1, 2, C. C. Gonzaga 1, 2, I. M. Bernardes Goulart 1, 2, 3, M. A. Gonçalves 1, S. Araújo 1, 2, 3
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Introduction: Early identification of infectious comorbidities in patients with leprosy can prevent further adverse effects, both of multidrug therapy (MDT) and associated diseases, improving the quality of treatment and preventing it from occurring interactions between drugs used and the diseases.

Methods: To demonstrate the prevalence of infectious comorbidities in leprosy patients before treatment MDT, infected by HIV virus and Hepatitis B and C virus, to evaluate the quality of treatment of patients affected with not only leprosy, but with other diseases that can interfere with treatment. Also examine the effect of comorbidty in patients and what interferes during treatment.

Results: Inside the 792 patients charts reviewed, 59,17% (468) were male and 65,87% (521) were female. The patients group positive to Hepatitis, 14,28% (2/14) show high results for alkaline phosphatasis (9/56) are positive for Hepatitis B and 8,92% (5/56) are positive for Hepatitis C. Inside the 792 charts reviewed, 56 patients were considered to be included in the group risk or risk behavior and, therefore, performed the serology tests. Inside this group risk, 8,92% (5/56) are positive HIV serology test, 16,07% (9/56) are positive for Hepatitis B and 8,92% (5/56) are positive for Hepatitis C. Inside the patients group positive to Hepatitis, 14,28% (2/14) show high results for alkaline phosphatasis (ALP). Furthermore, alanine transaminase (ALT) levels are high than normal in 14,28% (2/14) of the cases.

Conclusion: Since the MDT (especially rifampicin) and anti-reaction treatments can cause collateral effects that may be exacerbated by concomitant infections, serology to HIV Hepatitis B and C Virus is essential to demonstrate the prevalence of comorbidities in patients with leprosy. Use of rifampicin in patients with HIV is able to promote important pharmacological interactions with a specific and intestinal immunophilin (FKBP12). Tacrolimus inhibits the action of calcineurin and the activity of T-cells, thereby preventing the transcription and synthesis of IL-2, IL-3, IL-4, IL-5 and other cytokines such as granulocyte-monocyte colony stimulating factor (GM-CSF), TNFα and IFNγ. Tacrolimus has also been shown to inhibit the release of inflammatory mediators from skin mast cells, basophils and eosinophils.
Introduction: Since 30% of HIV pandemic, neither an increased prevalence of HIV among leprosy cases nor severe progression of leprosy among HIV infected has been observed. Despite the fact that both leprosy and tuberculosis originate from same genus of Mycobacterium unlike later there in no strong association established yet between the former and the latter. The National Capital Territory of Delhi being the fastest growing metropolitan in the world with population of 17 million (2011 census) attracts huge migrant population practising high risk behaviour; seeking livelihood options from the nearby states such as Bihar, UP, Jharkhand etc, which are endemic to leprosy. TLM community hospital established in 1984; situated in the midst of densely populated urban slums of North East District of Delhi. It is a recognised Leprosy referral centre attracting huge number of general and dermatological cases. The Integrated Counselling and Testing Centre (ICTC) was established in 2010 as an ‘add on service’. This was launched in collaboration with Delhi State AIDS Control Society (DSACS) under the private public partnership initiative of NACO (National AIDS control Organization).

Methods: The retrospective days between 2010 and 2012 from the ICTC is analysed. The total number of new patients visited was 55,477(100%); the reasons for consultations found to be 4% for leprosy, 11% for general medical and 85% for skin ailments respectively. A subset of 1035(2%) cases presented with either immune suppression and/or found practicing some form of high risk behaviours were subjected to HIV testing. First the counsellor explained the steps involved about testing in a sequential order. The clients were first subjected to pre-test counselling. The blood sample was collected after obtaining consent. The results were disclosed to the client by the physician after post test counselling maintaining confidentiality. The clients those who were tested sero-positive were referred to ART centre attached to nearby teaching institution. The partner’s and children of sero-reactive client’s were encouraged to report voluntarily for testing. Since Delhi is less endemic for HIV infection this ICTC unit is categorised as Strategy 2A as sentinel surveillance. Hence HIV sero-positivity is confirmed by performing two rapid tests either with different test principle involved or different antigens used. The interpretation of test was done as per the guidelines recommended by DSACS. This ICTC participates in External Quality Assurance Service program periodically showing a high concordance of reports of both positive and negative samples tested. The counsellor, lab technician, nurses and doctors are well trained by the DSACS.

Results: A Total of 1035 (2%) cases presented either with immune suppression and/or high Risk Behaviour over 3yrs (2010-12). Of which 283(9%) [18 males, 4 females & 4 transgenders] were tested positive for HIV. But only 1 woman was found to have concomitant Hansen’s disease and HIV infection, also she was exhibiting with ENL reaction; thus proving that co-infection of HIV and Hansen’s diseases exist but uncommon.

Conclusion: Leprosy and HIV co-infection still continues to remain rarer, published only in the form of single cases / multiple cases reports. The finding suggests that there is no strong correlation exists between Leprosy and HIV infection; however it emphasizes the need for further study.

Methods: Various M. leprae specific recombinant proteins and synthetic peptides have been tested for their immunogenicity at multiple endemic sites representing different genetic background via detection of multiple cytokines and chemokines in assays using peripheral blood mononuclear cells (PBMC) or whole blood from leprosy patients, house hold contacts (HHC) and endemic controls (EC).

Results: Some of the tested proteins including ML1601, ML2478 and MLO840 were highly immunogenic in leprosy patients although a considerable number of endemic controls (EC) also responded to these proteins. However, five ML1601 peptides induced higher IFN-γ responses in patients and HHC compared with EC. Two highly immunogenic ML1601 peptides and M. leprae virulence-associated peptides (derived from group IIA and identified through advanced bioinformatics programs) were analyzed in EC from Ethiopian areas with relatively high and low leprosy endemicity. The results revealed that analytes other than IFN-γ such as, IP-10, MIP-1α, MIP-1β, TNF-α, IL-10 and IL-6 were able to discriminate EC based on their level of M. leprae exposure.

Conclusion: Further longitudinal studies based on new biomarkers are warranted to assess the risk of developing leprosy among highly exposed individuals.
**P-280**

**Presentation Time:** Tuesday 17/09/2013 at 13:40 – 13:50  
**Abstract Topic Name:** New Diagnostic Tools  
**Presentation Screen Number:** 6  
**Presenter:** Elane Silva

**EVALUATION AND MONITORING OF HOUSEHOLD CONTACTS OF LEPROSY PATIENTS: CLINICAL EXAMINATION, INTRADERMAL MITSUDA REACTION, SEROLOGY FOR DETECTION OF ANTI-PGL-1 ANTIBODIES AND MULTI-EPITOPES OF RECOMBINANT MYCOBACTERIUM LEPRAE PROTEINS**

E. A. Silva 1, 2, 3, A. F. F. Belote 1, S. Lira 1, P. S. Rosa 1, J. Tomimori 1, 2, 3

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**Introduction:** Leprosy remains a public health problem in some countries and the elimination strategy is based on community awareness, early detection of the disease and the effectiveness of multidrugtherapy treatment, which alone does not eliminate the transmission of leprosy in the household environment. In this context, serological tests have been developed aiming at early diagnosis of the disease. This study will allow estimating the new case leprosy detection rate among household contacts in the municipality of Rondonópolis MT, Brazil, by evaluation of at least four household contacts per patient diagnosed, in a five year follow-up period, starting at the time of diagnosis of the index case.

**Methods:** In a previous cohort study between 2009 and 2010, dermatological examination, intradermal Mitsuda’s reaction and serology for anti-PGL-1 were carried out in all contacts of patients with confirmed diagnosis of leprosy. In the present prospective study, the same contacts will be reevaluated twice, in 2012-13, and then two years later (2014-15), completing five years of monitoring. Each evaluation will consist of clinical examination and blood sampling to obtain serum to be used for serological tests. If any of the contacts presents clinical signs or symptoms of leprosy, they will be subjected to confirmatory laboratory tests (skin smear and biopsy of skin lesion).

**Results:** Between 2009 and 2010 serology anti-PGL1 was carried out in 449 contacts, among then 48 were contacts of indeterminate patients, 99 of tuberculoid (TT), 153 of borderline-tuberculoid (BT), 75 of borderline-borderline (BB), 50 of borderline-lepromatous (BL) and 24 of lepromatous (LL). There were 23 (5.12%) seropositive contacts, and leprosy diagnosis was confirmed in 43 (13.04%) individuals (01 BT and 02 LL). Among PGL-1 negative individuals 09 (2.11%) had the disease. The reevaluation of the household contacts was initiated in 2012, and during this period four previously PGL-1 negative individuals were currently diagnosed as new leprosy cases. Therefore, until now 16/449 (3.56%) cases were diagnosed with leprosy amongst contacts, being four of them diagnosed during reevaluation. The anti-recombinant protein test is being standardized. As for the Mitsuda’s test, so far 357 individuals were evaluated, 81 were contacts, being four of them diagnosed during reevaluation. The anti recombinant protein test was carried out in 30 sera. The mean absorbance values of sera from MB patients with BI 4+ or higher (66.7%) were 0.528 ± 0.44, 0.590 ± 0.5, and 0.540 ± 0.500, respectively. In the clinical forms with BI ≤1+ values were under 0.2, showing a highly significant difference between these presentations (p=0.00035).

**Conclusion:** The characterization of clinical, epidemiologic, bacteriologic, histopathologic and immunologic parameters of contacts with Hansen’s disease facilitates the establishment of identification criteria for this type of pathology in Venezuela, helping to an early diagnosis and minimizing active transmission.

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**P-126**

**Presentation Time:** Tuesday 17/09/2013 at 12:30 – 12:40  
**Abstract Topic Name:** History of Leprosy  
**Presentation Screen Number:** 7  
**Presenter:** Prof Charlotte Roberts

**MYTHS ABOUT LEPROSY: RESULTS OF A SURVEY OF PERCEPTIONS ABOUT THE INFECTION**

C. A. Roberts 1, 2

1Archaeology, Durham University, Durham, United Kingdom

**Introduction:** In writing a book about leprosy past and present, the author increasingly became aware, anecdotally, of the dearth of knowledge about leprosy in a wide range of people from academics to the public. This presentation summarises the results of a survey that was undertaken to establish knowledge of leprosy, from its clinical aspects to its history, the hypothesis being that the majority of people are not familiar with this infectious disease.

**Methods:** A questionnaire was developed with 10 questions about leprosy: what is it, what pathological organism causes it, what part of the world is it most seen today, how does a person ‘catch’ leprosy, what predisposes people to contracting it, is leprosy described in the Bible, what parts of the body are affected, do the fingers and toes ‘drop off’, can leprosy be cured today, and were people with leprosy in the past ‘treated’. Additionally, up to five keywords were requested from participants that to them described the word ‘leper’. A range of groups in the UK were targeted, including museum visitors, new students (on entry) taking masters courses in Museum Studies and in Palaeopathology, 1st year undergraduates (on entry) taking a BA Archaeology, and various groups made up of the public. The aim was to select groups who had not been exposed to knowledge of the past and present of leprosy.

**Results:** Over 200 questionnaires were completed. The lack of knowledge about leprosy was very apparent and did not vary between the groups. Most notable were incorrect answers for the causative pathological organism; the method of transmission, predisposing factors, its description in the Bible, and how they were treated. Keywords for ‘leper’ were wide ranging but could be described as depressing, and negative.

**Conclusion:** The data collected and analysed suggest that people’s perceptions of leprosy are generally misinformed and need to be changed, both through action on the part of those working with leprosy and those with leprosy, and also medical historians and biarchaeologists. It is further concluded that it is likely that media perceptions of leprosy via TV, radio, newspapers, and film are a major contributory factor to this situation, and also authors of popular fiction. Once perceptions start to be changed, it is likely that funding for research and donations to leprosy charities may increase.

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**P-281**

**Presentation Time:** Tuesday 17/09/2013 at 13:50 – 14:00  
**Abstract Topic Name:** New Diagnostic Tools  
**Presentation Screen Number:** 6  
**Presenter:** Alsa Rada

**CHILD HANSEN’S DISEASE IN VENEZUELA**

E. M. Rada 1, 2, M. Contreras 1, M. S. Duthie 3, N. Aranazauré 1, R. Borges 1, J. Connit 1

1Leprology, 2Dermatology, Instituto Biomedicina, Caracas, Venezuela, Bolivarian Republic Of, 3Infectious Disease Research Institute, Seattle, WA, United States

**Introduction:** Hansen’s disease in children allows us to better understand the natural history of the disease, its incubation period, and the contagion source.

**Methods:** A questionnaire was developed with 10 questions about leprosy: what is it, what pathological organism causes it, what part of the world is it most seen today, how does a person ‘catch’ leprosy, what predisposes people to contracting it, is leprosy described in the Bible, what parts of the body are affected, do the fingers and toes ‘drop off’, can leprosy be cured today, and were people with leprosy in the past ‘treated’. Additionally, up to five keywords were requested from participants that to them described the word ‘leper’. A range of groups in the UK were targeted, including museum visitors, new students (on entry) taking masters courses in Museum Studies and in Palaeopathology, 1st year undergraduates (on entry) taking a BA Archaeology, and various groups made up of the public. The aim was to select groups who had not been exposed to knowledge of the past and present of leprosy.

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**Conclusion:** The data collected and analysed suggest that people’s perceptions of leprosy are generally misinformed and need to be changed, both through action on the part of those working with leprosy and those with leprosy, and also medical historians and biarchaeologists. It is further concluded that it is likely that media perceptions of leprosy via TV, radio, newspapers, and film are a major contributory factor to this situation, and also authors of popular fiction. Once perceptions start to be changed, it is likely that funding for research and donations to leprosy charities may increase.

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**P-128**

**Presentation Time:** Tuesday 17/09/2013 at 12:40 – 12:50  
**Abstract Topic Name:** History of Leprosy  
**Presentation Screen Number:** 7  
**Presenter:** Dr José Terencio de las Aguas

**LEPROSY IN Ars HISTORY OF LEPROSY**

J. Terencio de Las Aguas 1, 2

1José Terencio de las Aguas, DENA, Spain

**Introduction:** Since long time ago, Leprosy has appeared in paintings, draws and sculptures, not being very much conserved and maintained in the ancient times, such as the e Alexandria’s Facess, Leprosy’s king of Cambaya and some Palestine’s ceramic, but in the Middle Ages there are many inspired in the Old and New Testament and it was considered a divine punishment. Jesus miracles, appearing lepers wearing an ample hat with a dark frock, mutilations, beggars...
LEPROSY IN LIBERIA: A BRIEF HISTORICAL REVIEW OF PREVALENCE AND DISTRIBUTION

1Division of Research and Sponsored Programs, WVS Tubman University, Harper City, Liberia

Methods: Also, in America Saint Pedro Claver’s sculpture in Cartagena de Indias, a picture in Cayan and in Rio de Janeiro in a stained glass window of Fray Antonio’s Hospital and the father Damien sculpture in the colony of santa isabel of Brazil. In the XIX century stands out father’s Damien sculpture in Homolouli, Washington capitol and also in Belgium located in Louvain and Tremeiz. In Spain, the Pamplonas cathedral steeples, Saint Lazaro’s sculpture in Betanzos and the pictures of the Valencia and Barcelona’s museums and the Ferris Priest and San Francisco de Borja in Fontilles. The art throughout centuries, has helped to spread the medieval concept of Leprosy.

Results: The art throughout centuries, has helped to spread the medieval concept of Leprosy.

Conclusion: That’s why I encourage the artist to be away from the biblical concept of Leprosy and insist on the low contagion and the cure without later effects and the clear decrease of the pathology, stimulating the social reinstatement which will contribute to, in a not very distant future, to win the battle against Leprosy to obtain a world without it.

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P-130

Presentation Time: Tuesday 17/09/2013 at 12:50 – 13:00
Abstract Topic Name: History of Leprosy
Presentation Screen Number: 7
Presenter: Richard Nisbett

LEPROSY IN LIBERIA: A BRIEF HISTORICAL REVIEW OF PREVALENCE AND DISTRIBUTION, WITH A SURVEILLANCE UPDATE

R. A. Nisbett

P-131

Presentation Time: Tuesday 17/09/2013 at 13:00 – 13:10
Abstract Topic Name: History of Leprosy
Presentation Screen Number: 7
Presenter: Fátima Moll Cervera

ROLE OF THE SANATORIUM OF FONTILLES FROM ITS INAUGURATION IN 1909 UP TO THE USE OF THE FIRST EFFECTIVE DRUG AGAINST LEPROSY (PROMIN, 1945)

F. Moll Cervera 1*, J. R. Gómez 1, P. Torres 1

1Asociación FONTILLES, Vall de Laguart, Spain

Introduction: Leprosy was endemic on the Spanish Mediterranean coast at the end of the XIX century and the need of a leprosy sanatorium to attend the individuals affected was proposed and accepted. During its first years, the majority of the patients attended at the sanatorium were from the counties of Marina Alta and Marina Baja, both territories near the location of the Sanatorium of Fontilles.

Results: Only 85% of the medical files described the clinical type of the disease which was in 96% of the cases MBL. 65.65% of the patients admitted were men and 2.36%, where from the Community of Valencia where the sanatorium is located. 388 cases include the age the first symptoms of the disease were detected: 39 patients at 10 years old 11-20 years, 126 patients; 21-30 years, 110 patients, 31-40 years, 22 patients; 51-60 years, 19 patients; 61-70, 9 patients and over 71 years, 2 cases.

The main cause of death was kidney failure due to the clinical complications of the leprosy reactions. The patients were from rural settings and presented a high rate of illiteracy.

Conclusion: Improving the living conditions of individuals affected by a contagious disease with no effective treatment is essential to improve their quality of life.

P-132

Abstract Topic Name: History of Leprosy
Presentation Screen Number: 7
Presenter: Fátima Moll Cervera

CONTROL OF LEPROSY IN THE VILLAGES SURROUNDING THE SANATORIUM OF FONTILLES WITH NO EFFECTIVE TREATMENT AVAILABLE.

F. Moll Cervera 1*, J. R. Gómez 1, P. Torres 1

1Asociación FONTILLES, Vall de Laguart, Spain

Introduction: The geographic area surrounding the Sanatorium of Fontilles at the end of the XIX century was very endemic for leprosy. The patients with no effective treatment available presented persistent and continuous deformities which provoked their social exclusion and forced them to rely on charity for a living.

Since the Public Health Institutions were not presenting any initiatives to solve the problem, two benefactors Father Ferris and Joaquin Ballester decided to intervene and built a leprosy sanatorium with the aim of improving the living conditions of the patients. The isolation of the individuals affected in the pre sulphone era, contributed to the reduction of the local endemic situation.

Methods: The medical files of all patients accepted at the sanatorium between 1909-1939 were reviewed and the origin of the patients taken into account. The number of cases accepted as residents in the sanatorium decreased in the area surrounding the sanatorium during the following years after isolation had been introduced.

Results: Of the total of 1042 patients accepted since 1909 to 1939, 245 clinical histories of the patients from the districts of Marina Alta and Marina Baja, both territories near the location of the sanatorium, are evaluated. With this study, we can see how the cases hospitalized in the Sanatorium coming from the villages in Marina Alta, where the Sanatorium is located, were getting down (96, 64 and 28 cases) throughout the three decades. In case of the district of Marina Baja, a little farther from Fontilles, there were a smaller number of cases hospitalized during the first decade, as the sanatorium was not having sufficient space (5 cases in 11 years). The isolation of the cases of these villages during the second decade of existence of the Sanatorium (36 cases), had his influence in the decrease of cases in these villages, as it can be confirmed with the number of new cases accepted in the Sanatorium during the third decade of our study (16 cases).
Conclusion: This paper documents through words and pictures how TLM has evolved over 138 years responding to the changing needs of those affected by leprosy.

Methods: This paper was prepared by searching for material and photographs in the archives at different Leprosy Mission Centres

Results: Many Leper Homes were started by European and American missionaries who took in those outcast because of leprosy and gave them shelter. In time these Homes were handed over to the then “Mission to Lepers” now, The Leprosy Mission.

Schools and hostels started primarily to cater to children of inmates of the Homes during the early 1900s. They were often denied education in their home towns because of stigma. TLM had 5 schools at Champa, FAizabad, Purulia, Vadhavasalpur and Kathara. As MDT became available and schools started accepting leprosy affected children, TLM schools were no longer relevant and were closed. TLM Leprosy Control work was started in the 1960s and the work increased as programmes reached people in their own homes through the Survey Education and Treatment programmes.

TLM was one of the earliest partners of the Government in the NLEP and contributed greatly to meeting the need for continued leprosy expertise. TLM started its Vocational Training Centres (VTCs) in 1980. They have been instrumental in imparting vocational education to ensure that marginalised youth have increased employment opportunities.

As the medical issues of leprosy were at least partially addressed the need for Community Based Rehabilitation was recognised and TLM started its CBP programme with the objective of rehabilitating physically and socially handicapped leprosy patients.

Since the integration of Leprosy with other Health Care, the need to provide technical support to leprosy programme and establish sustainable quality leprosy services in the government general health care system was felt. TLMT, along with other ILEP partners volunteered to provide technical support to NLEP activities in various states of India.

To meet the need for extending leprosy expertise TLM started 5 training units at Dayapuram, Miraj, Purulia, Sakar and Nairi which trained many batches of government and NGO doctors and paramedical staff.

Research as a way of solving problems to improve the quality of life for people affected by leprosy is part of TLM’s work. TLM is currently involved in clinical trials, social science research to overcome stigma and epidemiological and laboratory research.

Advocacy, which is now recognised as the way forward to fight stigma and discrimination is part of leprosy missions agenda through various projects and empowering people to stand up for their rights.

Conclusion: Today TLMTI is the largest NGO in the country working in the field of leprosy touching the lives of people affected by leprosy through Health care, Community development, sustainable livelihoods, Public health, Research, Training and Advocacy, still responsive and therefore still relevant to the changing needs of leprosy affected through a holistic approach.

Introduction: Historical sources reveal that leprosy was a common and widespread disease during medieval times in Europe. However, there is a scarcity of archeological human skeletal remains presenting evidence of this disease. Additionally, since the pioneer works of the Danish medical doctor V. Møller-Christensen, between the 1940’s and 1970’s, the paleopathological diagnostic criteria of leprosy are confined to the lepromatous cases. Thus, additional investigation is necessary concerning the viability of the distinction between lepromatous (LL) and tuberculoid (LT) leprosy in past human skeletons. The present research aimed to contribute to the debate gravitating around the retrospective diagnosis of leprosy based on the correlation of both clinical and paleopathological data.

Methods: Two samples were analysed: (a) 300 clinical files, 150 from each type of leprosy – LL and LT – and 150 from each sex, collected from the medical archives of the leprosarium Hospital Colônia Rovisco Pais (HCRP), Tocha, Portugal, from patients screened between 1947 and 1985, and presenting age ranges from 4 to 93 years old; (b) 191 skeletons, 148 adults and 43 non adults, from both sexes, exhumed from the medieval leprosarium (13th–16th/17th centuries) of St. Jørgen’s, Odense, Denmark.

Results: The main results from the HCRP archives, revealed nasal destruction in 1.7% (5/295) and bone destruction of hand and feet bones in 10.4% (31/299) and 3.4% (10/296) respectively. The overall prevalence of oesoseous lesions was 13.0% (39/300) and the odds of developing bone changes in LT patients was 6.8 times higher (OR=6.7; 95% CI=2.60-18.67) when compared with LL cases. In the Odense sample rhinomaxillary bony changes were found in 72.8% (139/191) of the skeletons. The appendicular destructive lesions compatible with leprosy were recorded in the hand bones of 6.9% (11/159) of the individuals, whereas a higher percentage (26.1% [35/134]) exhibited feet lesions. The minimum prevalence of leprosy was 32.5% (62/191), applying the criteria proposed by Anderson and Manchester (1992) and Ottners (2003), and 42.9% (82/191) was the maximum prevalence when the criteria established by Møller-Christensen (1967) were used. The paleopathological identification of LT is discussed, as well as the corresponding differential diagnosis, considering ten skeletons presenting lesions on the hand and foot bones combined with the absence of rhinomaxillary changes.

Conclusion: After a cautious and exhaustive exercise of differential diagnosis, the paleopathological identification of LT should be considered when an adult skeleton without rhinomaxillary lesions presents acroosteolysis and destructive remodeling of hand and/or feet bones. Further investigations are necessary concerning the retrospective diagnosis of leprosy based on archaeological human remains. This will bring new challenges to the understanding of leprosy evolution and history.

Introduction: This paper describes the history of the origins of leprosy, especially its arrival, rise and fall in Britain, with special reference to Scotland. Despite its eradication from the UK (except for sporadic imported cases), the disease is still found throughout the developing world and remains a problem.

Methods: In addition to an internet search, a search was made in several libraries, including that of the Royal College of Physicians of Edinburgh, The Royal Commission on the Ancient and Historical Monuments of Scotland and the City of Edinburgh Central Library. A field visit was made to the medieval hospital site at Soutra Hill, the Calton Hill area and to see leprosy related murals in churches in Turkey, Spain and Ethiopia.

Results: These are presented in the Conclusions.

Conclusion: Leprosy affected all of Europe in the Middle Ages. It was recognized in the ancient civilizations of Egypt, India and China. The earliest evidence of leprosy in Europe comes from Greece, brought by soldiers returning from India about 327 BC. The first leprosy institution appears to have been founded in Rome in the 4th Century AD. It has commonly been thought that returning Crusaders brought leprosy to Britain. Certainly, after the first crusades, there was an increase in almshouses and hospices for leprosy patients, endowed by royalty and the aristocracy.

London’s first leprosy house was founded in Holborn in 1118 by Queen Matilda, an ex-patriate Scot and the highly devout wife of King Henry I. In Scotland, leprosy houses also proliferated between the 12th and 14th centuries. Robert the Bruce, whose skull possibly supports a diagnosis of leprosy, endowed a foundation for leprosy before 1329. Aldenesten in Lauderdale was possibly the first Scottish leprosy house, founded before 1177. Details about Edinburgh leprosy houses are sparse. It is likely that the Augustinian Friary complex at Soutra, founded in 1164 by Malcolm IV, treated leprosy patients. Leprosy was declining in England by 1350 when many English lazar houses were reporting no leprosy patients, and the last autochthonous case in Britain was a young adult found in England in 1798.

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Conclusion: The isolation of patients affected by a contagious condition with no effective treatment improved the control of the disease in a very endemic area.
ailments were particularly at risk but also subject to further persecution. This general decline in leprosy might also have been contributed to by the cross-immunity associated with the increase in a similar infection, tuberculosis. In Bergen in 1839 Danielsen concluded that leprosy was an inherited metabolic disorder and he and Boeck produced the first atlas on leprosy in 1847. Dr. G. H. Armauer Hansen demonstrated rod-shaped bodies in unstained preparations from the nodules of leprosy patients in 1873. With the help of Albert Neisser, reliable staining was established in 1879 and the modern study of leprosy began. Over the next 70 years an increasing amount of attention was paid to the search for effective treatment. The first was Promin in 1941 and by the early 1950s, Dapsone was in use throughout the world. This was followed by combined chemotherapy, using 2 fixed duration treatment regimens from 1982. For the first time, there was some hope that this awful disease could be vanquished. There are, however many challenges which still face us in the long battle against leprosy – a battle which will undoubtedly continue for many decades to come.

Methods: Leprosy was seen in Norway for many years. Due to improved lifestyle leprosy was eradicated in many European Countries. Practice of compulsory isolation of the leprosy affected person was in use for several decades upon introduction of Dapsone monotherapy the chemotherapeutic approach was started by Lowe in 1947 in Nigeria. Monotherapy was found to be resistant in many leprosy patients, hence WHO organized a working group on the chemotherapy of leprosy in 1950. Introduction of multi drug therapy has galvanized the treatment methods and granules were discovered. Auramin and rodamin staining gave characteristic fluorescence on growing on the authors' media only. In smears stained by Ziehl-Neelsen acid-fast short rods of sediment. In the same terms on solid nutrient medium the growth appeared as finest non-pigmented colonies of R-form. Some of them turned pinky-brown as turning old (approximately after 6-8 months without passage). Three out of isolated strains being repeatedly passed gave the growth of pigmented colonies of R-form on Lowenstein-Jensen medium, the remaining went on growing on the authors’ media only. In smears stained by Zehl-Neelsen acid-fast short rods and granules were discovered. Auramin and rodamin staining gave characteristic fluorescence in U-V-rays.

Conclusion: Thus, nutrient media proposed by us permit to attain multiplication of mycobacteria when material taken from infected tissues of leprosy patients and animals with experimental leprosy infection was seen on nutrient media, with high harvests.

MILESTONES IN LEPROSY

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Introduction: First historical evidence of leprosy dates its origin back in New Testament and in Old Testament Bible, until the end of 1873 the origin of the disease was not fully known. Several names for leprosy like Kushta, Mafung, Rubo, Prokosa indicates that this disease is predominantly of skin. G.Armour Hansen discovered the causative germ mycobacterium leprae but the successful multiplication of M.leprae outside the human body was achieved only 85 years after the discovery of m.leprae (Sheppard, 1960). For many decades Chaulmoogra oil was the only choice for treatment of the disease.

Methods: Leprosy was seen in Norway for many years. Due to improved lifestyle leprosy was eradicated in many European Countries. Practice of compulsory isolation of the leprosy affected person was in use for several decades upon introduction of Dapsone monotherapy the chemotherapeutic approach was started by Lowe in 1947 in Nigeria. Monotherapy was found to be resistant in many leprosy patients, hence WHO organized a working group on the chemotherapy of leprosy in 1950. Introduction of multi drug therapy has galvanized the treatment methods and granules were discovered. Auramin and rodamin staining gave characteristic fluorescence on growing on the authors' media only. In smears stained by Ziehl-Neelsen acid-fast short rods of sediment. In the same terms on solid nutrient medium the growth appeared as finest non-pigmented colonies of R-form. Some of them turned pinky-brown as turning old (approximately after 6-8 months without passage). Three out of isolated strains being repeatedly passed gave the growth of pigmented colonies of R-form on Lowenstein-Jensen medium, the remaining went on growing on the authors’ media only. In smears stained by Zehl-Neelsen acid-fast short rods and granules were discovered. Auramin and rodamin staining gave characteristic fluorescence in U-V-rays.

Conclusion: Thus, nutrient media proposed by us permit to attain multiplication of mycobacteria when material taken from infected tissues of leprosy patients and animals with experimental leprosy infection was seen on nutrient media, with high harvests.

AN ATTEMPT TO CULTIVATE MYCOBACTERIA ISOLATED FROM LEPROSY LESIONS ON MINIMAL NUTRIENT MEDIA

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Introduction: Cultivation of M.leprae is a difficult task remaining unsolved hitherto. Considering leprosy as a saprozoosis and, hence, not excluding the possibility of existence of leprosy mycobacteria in the environment, in particular in soil, we proposed minimal nutrient media for cultivation of M.leprae. The aim of the present work was to carry out a comparative study of the growth of M.leprae isolated from leprosy lesions cultivated on known nutrient media and media developed by the authors.

Methods: M.leprae isolated directly from infected tissues of leprosy patient (2 specimens) and from foot pads of CBA mice infected by Shepard (1960) with M.leprae (1-10 passages) originally isolated from leprosy patients (10 specimens) served as the material for investigation. Thus, 12 strains of M.leprae from 7 patients with leprosy were used.

Results: Isolated strains of mycobacteria possessed of the following properties. The growth on nutrient media visualized at the terms from 2 weeks up to 2-3 months and more after their incubation at 30°C. The growth of different strains on liquid media was detected in the form of sediment. In the same terms on solid nutrient medium the growth appeared as finest non-pigmented colonies of R-form. Some of them turned pinky-brown as turning old (approximately after 6-8 months without passage). Three out of isolated strains being repeatedly passed gave the growth of pigmented colonies of R-form on Lowenstein-Jensen medium, the remaining went on growing on the authors’ media only. In smears stained by Zehl-Neelsen acid-fast short rods and granules were discovered. Auramin and rodamin staining gave characteristic fluorescence in U-V-rays.

Conclusion: Thus, nutrient media proposed by us permit to attain multiplication of mycobacteria when material taken from infected tissues of leprosy patients and animals with experimental leprosy infection was seen on nutrient media, with high harvests.

MOLECULAR TESTING FOR DRUG RESISTANCE ON SLIT SKIN SAMPLES OF NEW LEPROSY PATIENTS-A COMMUNITY BASED STUDY FROM ODISHA, INDIA

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Introduction: During the year 2011-12, about 8000 leprosy cases were registered in the state of Odisha, India (NLEP data). Though the state has achieved almost elimination status, it is surprising to note that Odisha has recorded increased number of new cases in 2011-2012 than the previous year, contrary to the national picture of decreased ANCDR. This occurrence of new cases indicates an ongoing transmission, possibly from the existing relapses and/or poorly responding cases, which justifies for drug resistance surveillance studies. Although there is not much evidence available for wide presence of primary drug resistance in leprosy, it is essential to know such information in regions like Odisha, with increased incidence of new cases. With this background present study proposes to record the clinical profile of new leprosy cases and occurrence of M.leprae drug resistance. Patients were enrolled at field clinics of LEPRO India- Odisha, specimens were transported and tested at Blue Peter Public Health and Research Center, Andhra Pradesh, the referral laboratory with molecular testing facility, located more than 1000 km away from the field.

Methods: The study is a prospective cohort study which included newly diagnosed leprosy patients(n=79) registered for treatment, under three PHCs each of Sonapur and Koraput districts of Odisha, India, between June and December, 2012. Annualised new case detection rate (ANCDR)/100000 for 2011-12, was 68 in Sonapur and 32 in Koraput, which is quiet high as compared to the national (10) and state average (20). All the patients were enrolled using a standard study proforma to record demographic and clinical information. Slit skin samples were collected for all the cases and subjected for smear microscopy and PCR-sequencing for mutations in folP (dapsone), rplB (rifampicin) and gyrA (ofloxacin) genes of M.leprae.

Results: A total of 79 patients are registered for treatment. Out of 79, 47 (59%) were male and 32(41%) were female. Six percent of the 79 cases were children less than 14yrs. 48 (60%) patients presented with multibacillary leprosy. 25 (31.6%) MB cases were positive for BI ranging from 1+ to 5+ and MI ranging from 0.5-3.9. Fifteen percent of the total cases presented with reactions (11% T1R and 4% T2R). Deformities were present in 24% (G1, 14%; G2, 10%) of the 79 new leprosy patients. Fifty Out of 79 specimens completed PCR for all the three genes; sequencing completed for 5 specimens so far (at the time of abstract submission), none of which showed mutations in any of the drugs tested. PCR and Sequencing of rest of the specimens is in progress.

Conclusion: The study covered one of the tribal and rural communities in India with a very high ANCDR. More than half of the cases presented with multibacillary leprosy. Molecular testing could be carried out by utilizing the existing facility of community and laboratory referral network. No drug resistance observed among the new leprosy patients studied till date.
ANALYSIS OF PERSISTENCE OF MYCOBACTERIUM LEPRAE IN AMBLYOMMA CAJENENSE AND RHODNIUS PROLIXUS AFTER INFECTION BY ARTIFICIAL FEEDING

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1Pavilhão Hanseníase, Fundação Oswaldo Cruz, Instituto de Veterinária, Universidade Federal Rural do Rio de Janeiro, Instituto Oswaldo Cruz, Fundação Oswaldo Cruz, Rio de Janeiro, 2Departamento de Patologia, Instituto Lauro de Souza Lima, Bauru, 3Instituto de Bioquímica Médica, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil

Introduction: Currently it is believed that the only source of leprosy infection are untreated patients. Brazil has the most unfavorable situation in America, since the incidence rate of the disease in Brazil is still considered high. However, the epidemiology of leprosy remains with numerous questions, and several studies have suggested the existence of other epidemiological factors involved in the spread of the disease, including the ingestion of contaminated water and transmission by vectors. This study aimed to analyze by real-time PCR the persistence of M. leprae in the digestive tract of two tropical vectors, the tick Amblyomma cajennense and the triatome Rhodnius prolixus, in order to assess the viability of bacilli throughout digestion.

Methods: The experiments consisted of feeding females from both species with blood containing a bacterial load of 10^8 M. leprae bacilli per ml. Subsequently, levels of 16S rRNA and DNA of M. leprae in intestinal tissues and eggs were determined by real-time PCR, tissues and DNA were fixed and LAM immunolocalized. The viability of M. leprae in R. prolixus feces was also measured in Sheppard babO infection model.

Results: The analyses of intestinal tissues suggest the persistence of M. leprae in the intestine of A. cajennense and R. prolixus 15 and 20 days after infection, respectively. Immunolocalization of LAM on tissues demonstrates that M. leprae stays in the lumen of R. prolixus midgut and inside digestive cells of the tick A. cajennense. M. leprae resilience in Aedes aegypti and Culex quinquefasciatus midguts was about 3 and 5 days respectively. The inoculation of feces from in vitro infected triatomines into the foot-pad of 6 BalbC mice (Sheppard Model) confirm the presence of infective bacilli in the material after six months. Among 169 triatomines, nine individuals of the species Rhodnius pictipes and four Rhodnius prolixus were PCR positive for the 16S ribosomal gene of M. leprae after 15 and 20 days after infection, respectively. Immunolocalization of M. leprae on tissues demonstrates that M. leprae immunolocalized in intestinal tissues and eggs were determined by real-time PCR, tissues and DNA were fixed and M. leprae LAM immunolocalized. The viability of M. leprae in R. prolixus feces was also measured in Sheppard babO infection model.

Conclusion: The findings suggest that ticks and triatomines are capable of becoming infected and maintaining M. leprae viable in digestive tract, indicating its possible role as a reservoir and vector of the disease. These data are being deeply studied, and once confirmed will they enhance the role that arthropod vectors assume in the transmission of several pathogens, beyond resulting in changes in the epidemiology of leprosy, as well as the reformulation of control and eradication strategies.

DETERMINATION OF MYCOBACTERIUM LEPRAE VIABILITY USING 16S RNA

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Introduction: The impossibility of cultivating Mycobacterium leprae in axenic culture media has been ascribed solely to M. leprae. The lack of an in vitro system to study the biology of this pathogen has hindered our understanding of the disease. In this study, we aimed to determine the viability of M. leprae in clinical samples collected from leprosy patients.

Methods: A total of 17 skin biopsy specimens were obtained for leprosy patients diagnosed and classified according to the Ridley & Jopling criteria. TaqMan real-time PCR assays for detection of M. leprae DNA and RNA were determined in clinical samples collected from leprosy patients.

Results: The initial assessments were on therapeutic efficacy to analyze viability of bacilli in clinical samples after 0 to 12 months of MDT. A preliminary experiment was performed to detect M. leprae viability from skin biopsy MB and PB leprosy patients. The 16S rRNA/16S rRNA results were positive for all analyzed biopsy samples (CT ranging from 21.9 to 36.1) including paucibacillary.

Conclusion: The differentiation between the viable and nonviable M. leprae is very important for correct prognoses of leprosy patients on treatment, determination of drug resistance or identification of relapse. Thus, the 16S rRNA assay is an additional molecular tool for leprosy diagnosis and determination of the viability of the leprosy bacillus. Funding: FAPESP (2010/03693-9)

OLD DISEASE NEW INSIGHT: THE DISCOVERY, PHYLOGENY, AND SIGNIFICANCE OF THE SECOND LEPROSY AGENT MYCOBACTERIUM LEPROMATOSIS

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Introduction: Leprosy is a chronic indolent infectious disease of the skin and nerves. Human leprosy can be traced back to at least 100,000 years ago. The etiologic agent of leprosy has long been ascribed solely to Mycobacterium leprae until 2008 when we discovered a new mycobacterium species, named Mycobacterium lepromatosis, from two patients of Mexican origin who died of diffuse lepromatous leprosy (DLL). This finding has been of considerable interest as well as some skepticism to the leprosy community.

Methods: In this review, I try to use plain language to tell a perplexing medical detective story, taking a fortuitous near-miss discovery to a breakthrough in leprosy research. Questions are asked and answered to entertain readers and to convince skeptics about the science and art on how to name a new bacterial species, to draw cause-disease conclusion, and to guard against contamination in DNA amplification and genetic analysis. Ample examples and reasoning are given. Along with the history of human leprosy, DLL, and some aspects of M. leprae, I examine mainly our five papers on M. lepromatosis that involve 126 patients with leprosy in four clinicopathologic studies and one basic science study on analysis of 20 genes and pseudogenes. Two single case reports from others are also included as independent corroborations of our findings. Finally, I outline some thoughts on further research in terms of basic microbiologic aspects of the organism, epidemiologic investigations, and clinical tests and follow-up studies.

Results: The main conclusions from these studies are: M. lepromatosis and M. leprae are most closely related but distinct species that diverged ~10 million years ago from a last common ancestor; M. lepromatosis is the specific cause of DLL, an old disease in Mexico and Costa Rica; M. lepromatosis also causes lepromatous leprosy and other forms; M. lepromatosis is probably more prevalent than M. leprae in Mexico; both bacilli may coexist in endemic areas and dually infect a patient; M. lepromatosis is found so far beyond Mexico in natives of Singapore and Canada; M. lepromatosis contributes to the well known clinical and geographic variations of leprosy as the second elusive leprosy agent, and M. lepromatosis may cause severe leprosy reactions.

Conclusion: M. lepromatosis is the long-elusive second cause of leprosy.

METABOLIC AND IMMUNOLOGICAL PROFILES OF AIRWAY RESPIRATORY EPITHELIAL CELLS DURING INTERACTIONS WITH MYCOBACTERIUM LEPRAE.

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Introduction: The main route of entry of Mycobacterium leprae, the causative agent of leprosy, in humans is the respiratory tract, where it interacts with the upper respiratory epithelium. Despite its importance for establishment of disease, the interactions between M. leprae and respiratory epithelial cells have been poorly studied. Recently, our group has been able to explore a model of this interaction using nasal and alveolar epithelial cell lines. We were able to show that M. leprae can enter and survive in these cells for at least 10 days, causing increased cytokine production. In other studies, we have detected changes in the metabolic profile of the sera of leprosy patients with high and low bacillary counts, as well as before and after multidrug treatment. We also used the same techniques to detect metabolites changes in skin biopsies of these patients, which revealed a drastic differential expression of metabolites between paucibacillary and multibacillary patients.

Methods: In the present study, we used Direct Infusion Fourier Transform Ion Cyclotron Resonance Mass Spectrometry (DI-FT/ICR-MS) to investigate changes in the metabolic profiles of the airway
epithelial cells during M. leprae interactions. We also analyze a large number of cytokines and chemokines expressed in response to this interaction using multiplex cytokine immunosassays. These interactions were analyzed before and after the initiation with the epithelial cells and after an extended period of in vitro infection.

Results: Several changes in the metabolic expression profiles were detected during these different time-points of infection, showing that M. leprae affects the activity of important metabolic pathways on these cells. Production of cytokines was also altered in response to the different stages of infection.

Conclusion: This work sheds light on the mechanisms of invasion and survival of M. leprae in the respiratory tract, which is an important step of the initial stages of infection and transmission of the disease, therefore increasing our knowledge of the establishment of leprosy. Future studies will focus on the potential role of the metabolites found as therapeutic agents, based on their ability to inhibit M. leprae invasion and/or survival in these cells.

**P-144**

**Presentation Time:** Tuesday 17/09/2013 at 13:30 – 13:40  
**Abstract Topic Name:** Neurology  
**Presentation Screen Number:** 1  
**Presenter:** Junichiro En  

**SCHWANN CELLS ARE DAMAGED BY MYCOLACTONE PRODUCED BY MYCOBACTERIUM ULCERANS - MECHANISM OF PAINLESSNESS IN BURULI ULCER**

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Introduction: Painless nature of the lesion is one major character of Buruli ulcer. We have revealed that local nerves are damaged by the inoculation of M. ulcerans or by the injection of mycolactone in mouse models. In both models, intraneural Schwann cells showed vacuolar degeneration. In order to further elucidate the mechanism of nerve damage, we tested the cytotoxic effect of mycolactone on the cultured Schwann cells in comparison with cultured fibroblasts. Cell counting, apoptosis staining (TUNEL assay) and expression of apoptosis-related substances were evaluated in this study.

Methods: [Quantitative analysis of Schwann cell cytotoxicity using synthetic mycolactone A/B] SW10 mouse Schwann cells (ATCC CRL 2766) were cultured with synthetic mycolactone A/B (supplied from Prof. Yoshito Kishi, Harvard University, U.S.A.). For the comparison, L929 mouse fibroblast cells (ATCC CCL1) were used. Counting of dead cells after trypan blue staining and TUNEL assay using Chemicon ApopTag Peroxidase In Situ Apoptosis Detection Kit were done. [Detection of apoptosis by Western blotting] SW10 and L929 were cultured with synthetic mycolactone A/B. Cleaved caspase-3 and phospho-histone H2A.X (H2A.X) were detected by Western blotting. For the internal control, tubulin was used. [Detection of apoptosis by fluorescence microscopy] SW10 and L929 were cultured in the slide chambers. After fixation and Triton X treatment, by fluorescent dyes, cleaved caspase-3 was stained in red, nuclear DNA in blue, intracellular actin in green and the cells were examined under a confocal fluorescence microscope.

Results: [Quantitative analysis of Schwann cell cytotoxicity using synthetic mycolactone A/B] Schwann cell showed cell death 24 hours after the addition of mycolactone 300 ng/ml and 30 ng/ml of mycolactone showed partial detachment, but 3 ng/ml did not show morphological changes. Cell death evaluated by trypan blue staining shows that Schwann cells are more sensitive to mycolactone than fibroblasts. TUNEL assay also showed that Schwann cells are more sensitive to mycolactone than fibroblasts. [Detection of apoptosis by Western blotting] In L929 fibroblasts, cleaved caspase-3, PARP and H2A.X were not observed. Tubulin was expressed normally. In SW10 Schwann cells, cleaved caspase-3 was expressed after 12 and 24 hours. H2A.X was not observed. After 48 and 72 hours of 30 ng/ml mycolactone treatment, tubulin expression was not observed. [Detection of apoptosis by fluorescence microscopy] We compared the expression of cleaved caspase-3 after 12 and 24 hours after administration of mycolactone. Only in 12 hours after mycolactone 30 ng/ml expression was observed in the cytoplasm of some SW10 Schwann cells, but not in L929 fibroblasts.

Conclusion: Quantitative study of cell death and apoptosis showed that Schwann cells are relatively sensitive to mycolactone than fibroblasts after exposure to mycolactone A/B. Western blotting and immunofluorescence demonstrated that only SW10 Schwann cells at the distinct time point showed the expression of cleaved caspase-3. Caspase-3 is a key agent in apoptosis. Painless nature of Buruli ulcer is supported by the cytotoxicity of mycolactone A/B to cultured Schwann cells.

**P-153**

**Presentation Time:** Tuesday 17/09/2013 at 13:40 – 13:50  
**Abstract Topic Name:** Microbiology  
**Presentation Screen Number:** B  
**Presenter:** M. Luciana Fachin

**CELL POPULATION IN THE SPECTRUM OF LEPROSY AND REACTIONAL FORMS: EXPRESSION OF M1 AND M2 MACROPHAGES.**

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Introduction: Monocytes and macrophages play an important role in the regulation of the inflammatory response. Based on their functional properties, at least two subpopulations (M1 and M2) of mononuclear phagocytes, which differ in their pro- and anti-inflammatory potential, have been described. The cells of the M1 subpopulation secrete predominantly pro-inflammatory mediators which trigger and amplify the inflammatory response. The M2 subpopulation produces mainly anti-inflammatory mediators which take part in the suppression of the inflammatory responses. The aim of this study was to characterize the CD68+ (M1 and M2) and CD163+ (M2) macrophage populations in skin lesions of leprosy patients across the spectrum and during reactive states of the disease using immunohistochimistry.

Methods: The clinical form(s) of leprosy and reactional states were classified based on Ridley & Jopling's criteria. According to this classification, 70 biopsies of skin lesions were selected and evaluated: 10 tuberculous, 10 borderline tuberculous, 10 borderline lepromatous, 10 lepromatous, 10 type 1a reaction (RR), 10 type 2a reaction (ENL) and 10 healthy controls. Most biopsies were collected at diagnosis; therefore, all patients had not been treated, except patients with reactional episodes. Histological sections were stained with hematoxylin-eosin (H&E) and Fite-Faraco for classification. In addition, macrophage subpopulations were histologically immuno-phenotyped using CD68 (the ubiquitous macrophage marker) and CD163, a specific M2 macrophage marker. Immunostaining was compared with the corresponding H&E stained section. Slides were examined by two independent investigators. The distribution and percentage of cells expressing CD68-CD163+ (M1 macrophages) and CD68-CD163+ (M2 macrophages) were recorded in relation to the extension of the granuloma.
pathophysiological mechanisms of the disease was studied across the spectrum of leprosy, its
reactional states and its residual lesions.

Methods: Seventy-six biopsies of leprosy skin lesions and seven healthy controls were selected. Seventy-eight serum samples were used for the detection of CD105 by ELISA. Histological sections were stained with antibodies against CD1 (blood and lymphatic vessels), D2-40/ podoplanin (lymphatic vessels), and CD105/endothelin (neovessels). Microwaves were counted in 100 high power fields (400x) and the number of vessels was evaluated in relation to the extension of the inflammatory infiltrate (0-3), to the bacillary index (0-4) and to the clinical forms.

Results: Angiogenesis, as marked by CD31 and CD105, was observed across the leprosy spectrum, compared with the controls. Additionally, there was a positive correlation between these markers with extension of the infiltrate (p <0.0001). For D2-40, lymphangiogenesis was observed in the tuberculous form (p <0.0001). There was no statistical significance for values of CD105 detected in plasma by ELISA.

Conclusion: Angiogenesis is present across the spectrum of leprosy and in its reactive forms. The increase in the number of vessels, as detected by CD31 and CD105 staining, is related to the extension of the inflammatory infiltrate. Samples from reactive lesions have a higher number of CD31+ and CD105+ stained vessels, which indicates their involvements in the pathophysiological mechanisms of the reactive states. The regression of lesions is accompanied by the regression of neovascularization. Drugs inhibiting angiogenesis may be relevant in the treatment of leprosy, in addition to multidrug therapy, and in the prevention of the development of reactions. Supported by grants from FAPESP (2010/19288-3).

P-033
Presentation Time: Tuesday 17/09/2013 at 12:30 – 12:40
Abstract Topic Name: Molecular Biology
Presentation Screen Number: 9
Presenter: Dr Ming Li

STUDY ON GENOTYPING OF MYCOBACTERIUM LEPRAE IN GUANGDONG PROVINCE CHINA

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Introduction: Leprosy continues to be detected at near stable rates in China even with established control programs, necessitating new knowledge and alternative methods to interrupt transmission. A molecular epidemiology investigation of 24 patients was undertaken to define Mycobacterium leprae strain types and discern genetic relationships and clusters in Guangdong province. To understand the genotypes of M. Leprae collected from Guangdong Provence, China and to analyze the leprosy transmission roads inside and outside of Guangdong, as well as the impact of the emigrants patients to the endemicity in Guangdong.

Methods: Strain typing with VNTR and SNP were performed on the local cases and emigrant cases based on skin biopsy.

Results: Most isolates from local patients belong to SNP type 1 and SNP type 3 isolates were found in a small part of local isolates. However, all the emigrants belong to SNP type 3. Within the SNP type 1 strain from Guangdong, the alleles at the 18-8, 12-5, ML-1, (TA)10 and (GGT)5 have been found in a small part of local isolates. However, all the emigrants belong to SNP type 3. Within the SNP type 1 strain from Guangdong, the alleles at the 18-8, 12-5, ML-1, (TA)10 and (GGT)5 differ from SNP 3 strains collected from other areas in China. However, whether SNP type 1 or SNP type 3 from Guangdong local isolates, their VNTR profiles are close and the main differences are in the alleles at ML-1, (TA)10 and (GGT)5.

Conclusion: The transmission of strain with SNP type 1 is associated with Silk Road on the Sea. It is required to monitor and to confirm whether the transmission of patients with SNP type 3 in Guangdong are from the second transmission of the emigrant patients, and to further study the historic spread and phylogenetic relationships between SNP type 1 and novel SNP type 3 in Guangdong.

P-034
Presentation Time: Tuesday 17/09/2013 at 12:40 – 12:50
Abstract Topic Name: Molecular Biology
Presentation Screen Number: 9
Presenter: Yan Wen

EVALUATION OF REAL-TIME PCR TARGETING RLEP FOR DETECTION OF M. LEPRAE DNA IN PARAFFIN-EMBEDDED SKIN BIOPSY SPECIMENS FOR CLEAR AND DEFINITE DIAGNOSIS OF LEPROSY

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Introduction: While the conventional histopathology examination and acid fast bacillus (AFB) smear are important for diagnosing advanced multibacillary (MB) leprosy, they have poor sensitivity and low specificity for diagnosing paucibacillary leprosy (PB). The AFB staining is usually negative for PB patients. In this study, a TaqMan real-time quantitative PCR assay for detection of M. leprae DNA from paraffin-embedded skin biopsy specimens was developed and was compared with a nested-PCR test for the diagnosis of PB patients and also AFB and histopathology for diagnosis of PB cases. Primers and probes were designed based on M. leprae repetitive DNA sequence RLEP.

Methods: Primers and probes were designed according to the repetitive sequence of M. leprae from GeneBank. The recombinant plasmid pGEM-T1 was constructed and served as a template to prepare the standard curve for a TaqMan real-time PCR. It was evaluated systematically with respect to the standard curve, linear range, sensitivity, and specificity. We collected and detected paraffin-embedded skin biopsy specimens from 51 PB patients (BT: AFB+ 15; AFB+: 24; TT: AFB+: 1; AFB-: 9; 1: 2) diagnosed clinically.

Results: The results demonstrated that the real-time PCR test had a good sensitivity (80%) as well as specificity with no cross-reactions with twenty other bacteria and the control blood specimens. The real-time PCR detection rates for different types of the 51 specimens were 93.3% (14/15), 70.9% (17/24), 100% (1/1), 55.6% (5/9), and 50% (1/2), for BT AFB-positive, BT AFB-negative, TT AFB-positive, TT AFB-negative, and indeterminate, respectively. In addition, the real-time PCR and nested PCR are comparable (p>0.05) in diagnosing PB cases.

Conclusion: The TaqMan real-time PCR is a useful tool for a quick, specific, and sensitive detection and quantification of M. leprae DNA in paraffin-embedded specimens in which bacilli are undetectable by conventional histological staining. It is also useful in detecting M. leprae infections before major clinical manifestations.

Drug Resistance Study and Genotyping in M. Leprae Strains from Mali and Benin, West Africa

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Introduction: Drug resistance will always be a major problem in the fight against infectious diseases elimination. In order to foresee and rate the trend of these resistances, it is essential that different actors of this fight closely cooperate. A sentinel surveillance network for drug resistance in leprosy is globally settled from years. However, new members are still joining, expanding the global coverage and its efficiency. Since two years, Mali and Benin joined this sentinel surveillance for drug resistance network and here we are reporting the 1st results of this sentinel surveillance.

Methods: There were 36 samples from Mali and 6 from Benin; among them some were issued from relapse cases. Samples have been homogenized, frozen and boiled to extract M. leprae DNA. PCR amplified DNA has been sequenced with a genetic analyzer using Sanger method in order to check single nucleotide polymorphism (SNP). For anti-leprosy drug resistance, these SNPs are located on folP1 (dapsone) and gyrA (ofloxacin) genes. Clofazimin resistance has never been showed in leprosy and ofloxacin is used as a second line treatment. For strains genotyping, the standard SNP typing and subtyping classification has been used.

Results: Drug Resistance Study: 2 strains out of 42 got a mutation giving dopamine resistance; one is coming from Mali (Thr53Arg) and the other from Benin (Arg53Lys). No mutation giving rifampicin or ofloxacin resistance is present in these strains but, in one sample from Mali, only a M. tuberculosis sequence has been seen in roPB (rifampicin), for2 (dopamine) and gyrA (ofloxacin) genes. Clofazimin resistance has never been showed in leprosy and ofloxacin is used as a second line treatment. For strains genotyping, the standard SNP typing and subtyping classification has been used.

Conclusion: All the 42 strains from West Africa should be sensitive to Multi Drug Therapy (MDT), although 2 of them are certainly resistant to dopamine. The absence of drug resistance mutation in the 7 relapse cases shows that they were whether re-infected or that the first MDT didn’t kill all the bacilli. The presence of SNP subtype 4P, first time discovered in Africa, is an evidence of the underestimation of genetic diversity in Africa.
The genomic DNA was extracted from peripheral blood and the HLA-A*, B*, C*, was to verify the association of the HLA class I and II molecules in B patients (including BT, BB, M. leprae Mycobacterium. Introduction: Dermatology, Federal University of São Paulo, UNIFESP, São Paulo, Brazil

or HLA-DRB1*03/HLA-DQB1*01 simultaneously) was observed in 67 (33.0%) patients compared to 478 healthy controls. These data confirm the protector effect of HLA-C*05 and HLA-DRB1*07 against borderline leprosy, and the increase of the haplotype (HLA-DRB1*02 or HLA-DRB1*03/HLA-DQB1*01) was associated with HLA-B*07 (18.59% vs 12.78%, p= 0.002, OR= 1.58, 95% CI= 1.08-2.31), and negative association with HLA-B*51 (0.35-0.83). However, there was no statistically significant association with HLA-B*49 (1.0% vs 6.07%, p= 0.002, OR= 1.58, 95% CI= 1.08-2.31), and negative association with HLA-B*51 (0.35-0.83).

Results: The results showed positive association of B leprosy and HLA-B*07 (18.59% vs 12.78%, p= 0.002, OR= 1.58, 95% CI= 1.08-2.31), and negative association with HLA-B*51 (0.35-0.83). However, there was no statistically significant association with HLA-B*49 (1.0% vs 6.07%, p= 0.002, OR= 1.58, 95% CI= 1.08-2.31), and negative association with HLA-B*51 (0.35-0.83).

Conclusion: These data confirm the protector effect of HLA-C*05 and HLA-DRB1*07 against borderline leprosy, and the increase of the haplotype (HLA-DRB1*02 or HLA-DRB1*03) simultaneously) in B patients, once these HLA alleles are associated with the polar form of the disease, could explain the intermediate immune response characteristic of the B leprosy.

The genomic DNA was extracted from peripheral blood and the HLA-A*, B*, C*, DRB1*and HLA-DQB1* alleles were determined by PCR-SSO (polymere chain reaction – sequence-specific oligonucleotides) using Luminex (One-Lambda, CA, USA) in 202 B patients and 478 healthy controls.

Methods: The genomic DNA was extracted from peripheral blood and the HLA-A*, B*, C*, DRB1*and HLA-DQB1* alleles were determined by PCR-SSO (polymere chain reaction – sequence-specific oligonucleotides) using Luminex (One-Lambda, CA, USA) in 202 B patients and 478 healthy controls.

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METHODS: ExtracTion oF DNA FROM SKIN SMEAR STAINED BY THE ZIEHL-NEELSEN METHOD FOR AMPLIFICATION OF GENES ASSOCIATED WITH DRUG RESISTANCE IN LEPROSY

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Introduction: The HLAs influence the host immune response against Mycobacterium leprae. The consensus is HLA-DRB1*02/HLA-DRB1*03 in tuberculous leprosy and DQB1*01 in lepromatous leprosy. There is no, however, a consensus about the association of HLA and borderline leprosy (B), an immunologically unstable form of the disease. The aim of this study was to verify the association of the HLA class I and II molecules in B patients (including BT, BB, and BL), once there is few data available.

Methods: The genomic DNA was extracted from peripheral blood and the HLA-A*, B*, C*, DRB1*and HLA-DQB1* alleles were determined by PCR-SSO (polymere chain reaction – sequence-specific oligonucleotides) using Luminex (One-Lambda, CA, USA) in 202 B patients and 478 healthy controls.

Results: The results showed positive association of B leprosy and HLA-B*07 (18.59% vs 12.78%, p= 0.002, OR= 1.58, 95% CI= 1.08-2.31), and negative association with HLA-B*51 (0.35-0.83). However, there was no statistically significant association with HLA-B*49 (1.0% vs 6.07%, p= 0.002, OR= 1.58, 95% CI= 1.08-2.31), and negative association with HLA-B*51 (0.35-0.83).

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M. leprae to slow metabolism & growth in fadA2. Lack of functional propionyl CoA pathway & a methylcitrate cycle in acetyl CoA for the TCA cycle towards energy production. The preponderance of β-oxidation enzymes as pseudogenes possibly exerts a functional overload on present enzymes, contributing to slow metabolism & growth in M. leprae. These studies are currently being expanded to study these & other key metabolic processes.

**Vissa 2,*L. B. Adams 1,*, G. L. Davis 2, N. A. Ray 1, R. Lahiri 1, T. P. Gillis 1, J. L. Krahenbuhl 1, D. L. Williams 1**

**Presentation Time:** Tuesday 17/09/2013 at 13:30 - 14:00

**Abstract Topic Name:** Molecular Biology

**Presentation Screen Number:** 9

**Presenter:** Dr Marivic Balagon

**LEPROSY IN CEBU, PHILIPPINES: INSIGHTS FROM MOLECULAR EPIDEMIOLOGY APPROACHES ON GEOGRAPHIC DISTRIBUTION, DRUG RESISTANCE AND TRANSMISSION DURING 2002-2010**

**Introduction:** Cebu, Philippines, remains endemic for leprosy, even though multidrug therapy has been available for two decades. Active case finding is not in practice. To gain insight into this persisting problem, a descriptive molecular epidemiology program was established in late 2002.

**Methods:** From 2002 to 2010, 540 leprosy patients diagnosed at Cebu Skin Clinic (CSC) have been studied. A questionnaire was used to collect clinical, leprosy contact, demographic, occupational and residential histories (n=440). Thirty patients were from the 1980s. Residence was mapped at the street level on published maps and GoogleMaps. Skin DNA was used for strain typing of M. leprae by variable number of tandem repeats (VNTRs) (n=540) and SNPs (n=104) samples by published methods. VNTR types were analyzed by principal component analysis, Structure-neighbor and maximum parsimony. Drug resistance to a general survey was done on the patient's recall of drug regimens. DNA was extracted from FFPE tissues. Bacterial killing was also monitored in drug studies in which rifampin and rifampin-penicillin were compared for anti-M. leprae activity in 3 different regimens (10mg/kg each for 1, 5, or 20 daily doses) in the multibacillary (FB) model.

**Results:** A 96 well plate system was implemented for a streamlined assembly of four multiplex PCRs for each sample tested (22 test samples, one no template negative control and one positive reference DNA). After PCR, the samples were easily transferred to different 96 well plates for dilution and addition of sizing standards and formamide for automated fragment length analyses by capillary electrophoresis (Genetic Analyzer, Applied Biosystems). Data could be obtained within a 24 hour cycle. The chromatograms were read by all of the three authors. A recently developed non-DNA sequence based, real-time PCR high resolution melt analysis technique was used for rapid SNP typing (as 1, 2, 3 or 4 methods) for more than half the samples. The population structure of samples having complete data was explored using principal component analysis using the complete panel of VNTR loci.

**Conclusion:** There are distinct allele combinations associated with SNP type 1 and 2 strains, which allow for easy classification of strains. Nepal is highly endemic for leprosy. The patient address information at the time of diagnosis is not a reliable indicator of where the patient resided at the time of infection. Migration and lack of stable homes due to occupation is common. The plains bordering India are a passage way for leprosy to be transmitted across the countries. Prospective studies in specific communities and distant separated locations should be pursued to locate the hub for type 2 strains in Nepal and to find recent transmission links. Further SNP subtyping by HRM can improve the clustering of strains in larger groups.

**References:**

1Colorado State University, Fort Collins, United States, "Cebu Skin Clinic, Leonard Wood Memorial Center for Leprosy Research, Cebu, Philippines"
patient pairs with similar VNTR types were linked by location and community contact. Of fifteen multiscase families, VNTR types within 12 families indicated a common source of infection. Of those who defaulted and were restarted on MDT, 38.39% suffered from reactions. This could possibly be because of the fact that defaulting causes them to suffer from more severe problems like reactions.

Conclusion: Molecular epidemiology in Cebu uncovered the strain types, distribution and frequencies. Pockets of endemicity and dapsone drug resistance were found. VNTR strain typing identified small transmission clusters with known family or community links. In the urban crowded endemic setting, the strains are distributed beyond neighborhoods implicating extra-domiciliary transmission (occupational or other) also exists.

P-085
Presentation Time: Tuesday 17/09/2013 at 12:40 – 12:50
Abstract Topic Name: Chemotherapy
Presentation Screen Number: 10
Presenter: Prof Dr Heitor Gonçalves

BRAZILIAN CLINICAL TRIAL OF UNIFORM MULTIDRUG THERAPY FOR LEPROSY PATIENTS (U-MDT/CT-BR) - THE CORRELATION BETWEEN CLINICAL DISEASE TYPES AND ADVERSE EFFECTS

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1Reference Center in Dermatology Dona Libania, Fortaleza, 2Tropical Pathology and Public Health, Federal University of Goias, Goiania, 3Tropical Dermatology and Venerology Alfredo da Matta Foundation, Manaus, 4State University of Ceará, 5Pharmacology, Federal University of Ceará, Fortaleza, Tropical Medicine, University of Brasilia, Brasilia, Brazil

Introduction: An independent Brazilian study, the Brazilian U-MDT Clinical Trial (U-MDT/CT-BR), was initiated in 2007; in the study, dapsone, Rifampicin and clofazimine were administered over six months to all leprosy patients (LPs). Here, we present the results of an investigation that was performed in the context of the U-MDT/CT-BR project with respect to comparing the incidence of adverse effects in two situations: (i) PB and MB patients who were treated with the same regimen (U-MDT) and (ii) PB patients who were treated with either the PB (R-MDT) or the MB (U-MDT) regimen.

Methods: The targeted patients were those with diagnosed leprosy who were treated in the U-MDT/CT-BR study. Out these patients, we selected 60 patients who presented with tuberculoid, borderline lepromatous (BL), or lepromatous leprosy (LL) types, based on unambiguous, rigorous, clinical, bacteriological and histopathological criteria according to the Ridley and Johling (1966) classification. These 60 patients were distributed into three groups. Forty PB patients were divided into two sub-groups: (i) 20 patients were treated with MDT-PB treatment and (ii) 20 with the MDT-MB for six months. The 20 MB remaining patients (14 LL and 6 BL leprosy) were treated with MDT-MB for six months. None of the patients were removed from the study. The following adverse effects were monitored in the three groups: decreases in red blood cells (RBCs), haematocrit, haemoglobin, leucocytes and platelets, increases in the middle corpuscular volume, reticulocytes, C reactive protein (CRP), bilirubin, leukocytes and serum activities of lactate dehydrogenase, serum glutamic oxaloacetic transaminase, serum glutamic pyruvic transaminase and alkaline phosphatase and the presence of jaundice, haemolytic anaemia, arterial hypertension, anaemia, anorexia, vomiting, abdominal pain, diarrhoea, dizziness, fatigue, headache, methemoglobinemia, cyanosis, dyspnoea, psychosis, peripheral neuropathy, sulphone syndrome, agranulocytosis, acne, renal failure, flu-like syndrome, cutaneous pigmentation, xeroderma, constipation, acute abdominal pain, weight loss, lower limb oedema and drug-induced skin disorders. The statistical analysis of the association between the variables (adverse effects of drugs used in the MDT for leprosy) and the study groups (PB MDT-PB, PB MDT-MB and MB MDT-MB) was performed using the non-parametric chi-squared test and the probability ratio. The adverse effects were grouped according to the most likely causative drug.

Results: Haemolytic anaemia was the most frequent adverse effect, particularly in the groups treated with MDT-MB. Of the PB patients under MDT-MB, 30% presented with a haemoglobin index of < 10 g%, while none of the patients under MDT-PB presented with a haemoglobin index of < 10 g%. Accordingly, we observed a statistically significant difference (p < 0.05) between the PB groups on MDT-PB and MDT-MB in the distribution of the haematological alterations of the RBC index. No other statistically significant difference was observed between the groups.

Conclusion: Although PB and MB Leprosy patients presented bacteriological, immunological, histopathological, clinical and genetic differences, no differences in the incidence of adverse effects were observed in this study.

P-086
Presentation Time: Tuesday 17/09/2013 at 12:50 – 13:00
Abstract Topic Name: Chemotherapy
Presentation Screen Number: 10
Presenter: Bruna Gouveia

GENETIC POLYMORPHISMS OF NAC2, CYP2E1 AND ADVERSE EFFECTS ON DAPSONE THERAPY IN LEPROSY PATIENTS

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Introduction: It is well known that dapsone is a drug with most prominent adverse effects on the current multidrugtherapy for leprosy. The influence of genetic polymorphisms within N-acetylcysteine transferase 2 (NAT2) and CYP2E1 in N-acetylation and oxidation of dapsone was evaluated. A total of 11 leprosy patients presenting different kind of blood and liver abnormalities...
related to dapsone therapy for leprosy were reported focusing in two of them, genetically characterized as slow acetylators and presenting the wild type allele of CYP2E1 (A1/A1) genotype.

Methods: Cases features: 1 S.S, male, 42, black, diagnosed as BL leprosy presenting type I and type 2 reactions since his diagnosis 7 years ago. By the 4º monthly dose of MDT/MB therapy, the patient presented jaundice and skin rash, which imposed immediate dapsone withdraw. At diagnosis, the laboratory features were: Ht: 46.5 and Hb: 14; TGO: 12; TGP: 52; CGT:60 (blood and liver parameters of interest) and at adverse effects diagnosis was: Ht: 35.0 and Hb; 10; TGO: 56; TGP:382; CGT:402.

During this patient follow up at outpatient clinic, severe intercurrences were faced: severe type I and II reactions, ulcers and venous thrombosis, with four hospitalizations in a university hospital. 2º MCS, woman, 52, white diagnosed as TT leprosy and submitted to MDT/PB. One week after her first monthly dose, she returned to the outpatient clinic presenting jaundice and dapsone was withdrawn.

At diagnosis the laboratory features was: Ht: 42 and Hb: 14. At adverse effects diagnosis it was: Ht: 39 and Hb: 13. No liver functions were measured. The patient was submitted to MDT/PB with clobazinol to replace dapsone and no other intercurrence was observed.

Results: Treatment with dapsone has been reported to cause hemotocic and hepatotoxic reactions. Dapsone-hydroxylamine generated by a CYP-family mediated oxidation reaction and monoclonal dapsone hydroxylation, a product of an oxidation of dapsone are the toxic metabolites. The slow acetylation profile is usually involved with polymorphisms in genes from NAT2 and CYP family, respectively, were predominant in both cases. Usually dapsone mediated ADRs are observed in the first month of treatment. In the first case its occurrence in the fourth month could be explained by the simultaneous intake of corticosteroids for reaction in MDT onset. In the second case the dapsone withdraw after one week of treatment starting, prevented the patient worsening of dapsone adverse-effects.

Conclusion: Clinical manifestations of the cases presented here were the opposite. The first, a MB patient with several clinical complications and the second, a PB patient with no clinical intercurrence, in spite of presenting the same phenotypes for the genes under study suggest the strict correlation of the NAT2 slow acetylation phenotype and CYP2E1 wild type allele (A1/A1) with drug metabolism. However, this hypothesis should be better investigated.

P-087

Evaluation of Multibacillary Patients Administered Alternative Multidrug Therapy

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Introduction: The aim of leprosy treatment is to increase patient well-being and impede further transmission and permanent disabilities via bacteriological and clinical cure. Effective treatment is the basis of the control and elimination of the disease as a public health care issue. However, medications may sometimes cause unexpected side effects and complications leading to an unfavorable clinical outcome, which, in turn, could contribute to abandonment of treatment. The alternative treatment is indicated for patients who for one reason or another cannot take the standard multidrug therapy due to the side effects it may provoke or the presence of intercurrent diseases. The objective of the present study was to evaluate the recommended alternative treatment for multibacillary patients, comparing it with standard multidrug therapy (MTD /WHO), and describe the principle adverse events that occurred leading to the substitution of standard MDT with the alternative regimen.

Methods: A retrospective study was conducted with a cohort of 435 multibacillary leprosy patients who were registered and treated at the Leprosy Outpatient Clinic (Leprosy Laboratory) from January 1998 thru December 2009 and who were under surveillance for 1 year after discharge. Patients were divided into 2 groups: Group 1 consisted of 390 patients who received standard multidrug therapy and Group 2 with 45 patients who were treated with the alternative. Clinical outcomes used to assess the 2 regimens were: evolution of bacterial load via bacillary index (BI), evolution of physical disability according to disability grade (DG) and evolution of the occurrence of reactive episodes after treatment discharge. A multinovariable analysis was performed to assess the association with the outcomes and the patients variables. The level of statistical significance was 5%.

Results: The study showed that dapsone was the main drug responsible for the adverse side effects presented by patients. At the end of 1 year of treatment, the reduction in the mean BI of Group 1 was almost the same as that of Group 2. Likewise, 1 year after discharge, the alternative multidrug therapy pattern was similar to the standard scheme with respect to evolution of the bacterial load and disabilities. Likewise, multivariate analyses showed no association between type of leprosy treatment and a high bacillary index and with the presence of disabilities after treatment release. With regard to reactional episodes, patients treated with the alternative regimen had a lower chance (OR= 0.44; CI: 0.20-0.98) of reaction within 1 year post-treatment than those administered the standard scheme.

Conclusion: The alternative leprosy treatment was similar after discharge to the standard one with regard to bacillary load and disabilities. An interesting result deserving of further attention was the occurrence of reaction after discharge in patients who were administered the alternative regimen.

P-089

Analytical Study of Defaulers in Leprosy at a Tertiary Leprosy Center in South India

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Introduction: Leprosy is a chronic infectious disease that leads to its physical psychological and social disabilities due to mutilation and rejection effects. Treatment default is an enigma in reduction of prevalence of leprosy cases. Defaulters are leprosy patients under treatment who do not complete the treatment within the specified period of 6 pulse therapies in 9 months by paucibacillary and 12 pulse therapies in 18 months by multibacillary patients. The objective of this study was to assess the pattern and magnitude of defaulting from leprosy treatment.

Methods: A study was conducted from January 2004 to December 2012 in a tertiary leprosy centre in Karnataka, South India to determine the pattern and magnitude of defaulting of leprosy patients from treatment. Records of 330 registered cases in the leprosy center during the nine year period were reviewed.

Results: A total of 330 clinicopathologically confirmed registered cases of leprosy patients were included in the study. There were males (274) and females (56) with the ratio of (4.8:1). The patients were in the age group between 10-70 years. A total of 40 treatment defaulters out of 330 cases were identified accounting to the defaulting rate of 12.12%. The default rate was higher among male adult patients in the age group between 20-30 years. Among defaulters, 3 were children (<12years of age) and majority of defaulters belong to multibacillary leprosy (92.9%).
A detailed analysis showed the major reason for default was the change of address (47%), since 32(75%) were migratory labourers. The number of defaulters still remain at higher percentage in the present modern era of leprosy treatment. Hence appropriate health education to the patients about the disease manifestations, severity and its complications is necessary. Regular review of records, systematic registration of patients and tracing of absentees with community involvement are recommended. Providing easy accessibility for the patients to the leprosy centre also helps in regular follow up and reduction in number of defaulters. In addition, further studies should be done to assess the effective duration of treatment and other factors associated with individual patient on defaulting from treatment.

Conclusion: Leprosy treatment defaulters remain a potential source of infection. Based on the findings defaulters still remain at higher percentage in the present modern era of leprosy treatment. Hence appropriate health education to the patients about the disease manifestations, severity and its complications is necessary. Regular review of records, systematic registration of patients and tracing of absentees with community involvement are recommended. Providing easy accessibility for the patients to the leprosy centre also helps in regular follow up and reduction in number of defaulters. In addition, further studies should be done to assess the effective duration of treatment and other factors associated with individual patient on defaulting from treatment.

P-090
Presentation Time: Tuesday 17/09/2013 at 13:30 – 13:40
Presenter: Attyla Drabik
PLANNING PROJECT MANAGEMENT IN CLINICAL TRIALS: A BRIEF GUIDE OF ESSENTIALS

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Introduction: The successful implementation of clinical study projects requires thorough planning and preparation. Clinical and medical as well as methodological and regulatory aspects must be discussed. The coordination of different areas such as biometrics pharmacovigilance, data management, monitoring, laboratory, pharmacy is one of the particular challenges.

Methods: Compilation and description of work packages to execute project management.

Results:
Preparation of study outline (Determination of basic clinical and methodical contents)
Determination of responsibilities (List study team including investigators)
Preparation of study protocol: logistics protocol versions; coordination of communication (coordinating-investigator; biometrics, data management, pharmacovigilance, monitoring)
Preparation/ national adaptation: patient information and informed consent
Feasibility-check of study sites
Verification of qualifications: e.g. collecting Investigators’ CVs
Application for ethics committee’s approvals
Application for approval of regulatory authority
Compilation of TMF
Compilation of ISF
Contractual arrangements (contract: study site)
Contractual arrangements (contract: pharmacy/dispensary)
Contractual arrangements (contract: laboratory)
Contractual arrangements (contracts with third party: e.g. CROs)
Taking out of insurance for study subjects
Request for EuDrACGT number
Study registration
Notification of study sites at federal authority
Notification of study sites at regional authorities of the respective Land
Investigational Product (Settling and arrangement: production, packaging, labeling, logistics)
Setting logistics laboratory and laboratory samples
Request for: table of reference values, laboratories’ certificates, Investigator’s brochure (IB)
Arrangements regarding expert procedures
Expenses and cost control
Translation of study documents (e.g. patient information)
Organization of kick-off meeting or initiation monitoring

Conclusion: The implementation of project management in clinical trials consists of various tasks, which generalized in a structured collection are very manageable.

P-500
Presentation Time: Tuesday 17/09/2013 at 15:40 – 15:50
Presenter: Dr Isabela M. B. Goulart
MICROBACTERIUM LEPRAE DNA IN PERIPHERAL BLOOD OF LEPROSY PATIENTS: HOUSEHOLD CONTACTS AND CONTROLS MAY INDICATE A BACILLI MIGRATION ROUTE AND AN UNUSUAL MODE OF TRANSMISSION

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Introduction: Untreated Multibacillary (MB) leprosy patients are considered the main source of M. leprae transmission. However, the number of MB patients is small and cannot represent the sole source of infection. The possibility of bacilli spread cannot be restricted to leprosy patients and almost certainly healthy carriers and individuals with subclinical infections play important roles in the disease chain of transmission. Leprosy epidemiological studies have been restricted to Mycobacterium leprae DNA detection in nasal and oral mucosa samples. The presence of M. leprae in peripheral blood has not been thoroughly investigated, although some reports have shown an infrequent presence of M. leprae in the blood of leprosy patients using both staining techniques and conventional PCR. We present the largest study applying quantitative real-time PCR (qPCR) for the detection of M. leprae DNA in peripheral blood samples.
Methods: To detect M. leprae DNA a qPCR primer/probe assay targeting a 69 bp DNA fragment from the unique gene M.leprae MO0024 genomic region was performed. Samples from 200 leprosy patients, 826 household contacts and 1007 blood donors, were evaluated and results correlated with clinical and laboratory parameters.

Results: PCR positivity among patients was 22%, (44/200), ranging from 16% (4/25) in tuberculosis (TT) to 33.3% (11/33) in lepromatous leprosy (LL) patients. Of the 44 patients with positive MO0024 qPCR, 59% (26/44) were positive for anti-PGL-1 ELISA, and 72% (32/44) had negative or weakly positive Mitsuda response. Among contacts the positivity was 1.2% (10/826) and 0.3% (1/307) among blood donors. These three blood donors positive samples were further confirmed by a secondary amplification reaction for the detection of another M. leprae specific gene (RLEF3). Contacts were followed up for a period of 7 years. In this period, 3.1% (26/826) developed leprosy, all of them were contacts of MB patients and 61.5% (16/26) were contacts of LL patients. Among the 26 contacts that became ill, MO0024 qPCR detected DNA from M. leprae in 11.5% (3/26), the ELISA test was positive in 57.7% (15/26), and Mitsuda test was negative or weakly positive in 84.6% (22/26). Positive MO0024 qPCR among contacts represented an impressive 17.22-fold greater chance of developing leprosy (p = 0.0001; 95% CI: 4.05 – 73.15), while anti-PGL-1 ELISA positivity increased 7.35-fold the chance of becoming ill (p < 0.0001; 95% CI: 3.29 – 16.46); on the other hand, the positive Mitsuda test (> 7 mm) promoted a 4.54-fold chance of protection (p = 0.0058; 95% CI: 0.07 – 0.66).

Conclusion: Even though most of the contacts will not get infected or develop leprosy due to the complex relationship among genetic, immunological and environmental factors, they may favour M. leprae dissemination to susceptible individuals. The presence of M. leprae DNA in blood of contacts and of blood donors, and a greater chance of developing leprosy among positive contacts, suggest that qPCR positive individuals without symptoms may behave as carriers maintaining the bacillary burden in endemic communities and with epidemiological contribution in the disease chain of transmission. Our findings corroborate with the hypothesis that transportation of the bacillus through bloodstream is a cellular event that seems to be required prior to the infection of Schwann’s cells and tissue macrophages. Moreover, it is plausible that bacilli can be transmitted through blood, however it’s not usual. Our results impose important implications on disease management, and justify chemoprophylaxis for those identified in a high risk category.

P-501

Abstract Topic Name: Molecular Epidemiology

Session: Tue 17/09/2013 at 15:30 – 15:40

Presentation Number: 2

Presenter: Dr Mikhail Yushin

DETECTION OF IMMUNOGLOBULINS G TO DIS-BSA-SPECIFIC SEMI-SYNTHETIC ANTIGEN OF MYCOBACTERIUM LEPRAE IN BLOOD SERA FROM DONORS OF ASTRAKHAN REGION OF RUSSIAN FEDERATION

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Introduction: Studies carried out in different leprosy endemic countries showed that antibody response in leprosy patients significantly changed in dependence with type and form of the disease. Patients with multibacillary forms of leprosy gave positive reactions for anti-M.leprae antibodies in 75-100% cases, while in paucibacillary leprosy only 15-40% patients demonstrated anti-M.leprae antibodies. For anti-PGL-1 the presence of antibodies in leprosy endemic regions are discovered not only in leprosy contacts but also in general healthy population without known contact with leprosy. Besides, interrelation between morbidity and infectivity could not be always traced. In different world regions rates of detection of specific antibodies against M.leprae in healthy population significantly range from 4 up to 32%.

The aim of the present investigation was to detect antibodies against M.leprae in sera from healthy blood donors living in Astrakan region which is leprosy endemic area in Russia.

Methods: In order to solve the task the authors used a solid phase enzyme immunoassay based on antigen - disaccharide conjugated with bovine serum albumin (Dis-BSA), which presents a semi-synthetic analogue of M.leprae specific phenol glycolipid-1 (WHO Bank). Donor blood sera were diluted 1:3 with PBS-TwIn 20.

Results: As a result of the study performed on 88 blood donors antibodies of IgG class towards a specific semi-synthetic M.leprae antigen, were detected in 45 persons, that makes 51.1%.

Conclusion: Considering leprosy as saprozoosporosis we could not exclude a possibility of existence some extra human part of M.leprae population. Already in the end of the XIX century it was supposed that soil could be an alternative source of infection with M.leprae. Nowadays more and more data in favor of the suggestion that a human being could not be a single source of leprosy bacilli continue to be accumulated. Viable M.leprae were found out in soil specimens both in regions of inheritance of leprosy patients and in areas where leprosy patients are never registered. In our opinion, leprosy bacilli could spread from the environment among general population and cause a process of latent immunization. This fact is indirectly confirmed in our investigations by detection of antibodies against M.leprae specific antigen in healthy persons (blood donors) in Astrakan region where only sporadic cases of leprosy have been registered for the last decade.

P-174

Presentation Time: Tuesday 17/09/2013 at 15:40 – 15:50

Abstract Topic Name: Epidemiological Surveillance

Presentation Screen Number: 2

Presenter: Magda Levanezi

LEPROSY IN CHILDREN UNDER FIFTEEN YEARS IN BRAZIL, 2011

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Introduction: Leprosy is considered a disease of adults and young-adult, however, there are numerous case reports of this disease in patients younger than fifteen. The fact can be justified by the existence of an increase in the chain of transmission of the bacillus in the community, as well as a deficiency in the surveillance and disease control.
The detection rate of new cases in children under fifteen years is a political priority in leprosy control in the country. Children are most at risk when there is the presence of leprosy in the family or when a case bacillus is close to them. The Ministry of Health shows that in all these Federative Units, the incidence of the disease among children under 15 is well above the national average, especially in the states of Tocantins, Mato Grosso, Pará and Maranhão in 2011 were recorded in 2420 cases under 15 cases totaling a national coefficient of detection of 5.22 cases per 100 thousand inhabitants in this age group.

Leprosy is considered a disease of adults and young-adult, however, there are numerous

Methods: Descriptive epidemiological study that had as population the positive cases of Hansen's disease in minors of 15 years notified in Brazil. Were used as data three the Agrovos System of Notification, the Hansen's disease cases, and the Brazilian Institute of Geographic Statistics, for population data.

Results: The results shown that 2420 disease cases that happened in minors of 15 years in 2011 were distributed in 5965 cities, and that 692 cities registered the occurrence of 1 to 10 cases of the disease, a total of 1489 cases (61.5%); 35 cities showed 15 to 25 cases, 544 (22.5%) and 8 cities notified 25 cases or more, totaling 87 cases (16%), therefore, about one third of the Hansen's disease cases in minors of 15 years in Brazil in the year of 2011 are concentrate in 43 Brazilian cities.

Conclusion: It is expected that the results of this work lead to an upgrading of the methods and strategies of intervention, especially for the poorest population, expanding the access to a quality health service, establishing integration strategies with primary attention, aimed at early diagnosis and the appropriate treatment having as focus the incidence monitoring and the illness risk for Hansen's disease, especially in this vulnerable population, the minors of 15 years. Another important thing to be considered, the stigmatizing and incapacitating power of the disease that sometimes can lead to irreversible deformities, keeping the children in the wheel of poverty compromising their quality life.

The promotion actions aiming the popular education, the training of health professionals for monitoring and evaluation of its services facilitating the adoption of strategies to cope with the disease and the elimination of Hansen's disease as a public health problem, are also expected.

LEPROSY IN TAJIKISTAN

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Introduction: Already in 1939, it was realised (N.F. Pavlov) that Pamir was a “gate” for leprosy from Afghanistan into Tajikistan. The province Gorno-Badakhshan Autonomous Region (Pamir) in the Republic of Tajikistan borders with Afghanistan in the West with more than 1,000 km. There was the Great Silk Road connecting the East with the West in the past. It was common for Afghan leprosy people to come to Gorno-Badakhshan (GBAR). Epidemiologic studies testify that there was a high prevalence of leprosy in the GBAR. Most of the country is located as high as 4,000 metres above sea level.

Methods: Systematic description of on-site detection.

Results: In the year 1998 there were in Tajikistan120 patients. 60% of them were MB (72 patients). Almost all of the 120 patients are disabled. In 1998 they were put on MDT, prior to that they were treated with monotheraphy (Dapsone).

In Tajikistan there is one leprosarium called Hanaka. It is located about 100 km from the capital Dushanbe.

The number of registered leprosy patients has decreased considerably during the last few decades. Currently there are 51 registered patients, 24 of them are in the leprosarium Hanaka. The situation of leprosy in Tajikistan is extraordinarily specific for the following reasons:

1. 80% of registered patients who now live in the leprosarium Hanaka have come from Pamir. But it is not possible to check up on most of their contact persons because they cannot be reached in the high mountains.

2. In the border territory to Afghanistan the prevalence of leprosy among the Afghans is high. So because of the uncontrolled border, there is a great possibility of infection for the Tajik people.

Conclusion: It is planned to build a leprosy/health-centre in the west border region to Afghanistan. Because the border is uncontrolled the leprosy patients from afghanistan can stay up to three month in Tajikistan.

LEPROSY IN CEBU, PHILIPPINES: SEARCH FOR DEMOGRAPHIC, ECONOMIC AND WATER USAGE RISK FACTORS FOR TRANSMISSION

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Introduction: Despite the long history of leprosy with humanity, relatively little is known about the transmission of this debilitating disease. This is due to the long incubation period, making the exact time and mode of transmission difficult to ascertain. Mycobacterium leprae, the causative bacterium is uncultivable in vitro. This study aims to determine the risk factors and modes of transmission of contacting leprosy, such as where and how transmission is occurring, looking specifically at water sources, employment, gender, and social/ familial interactions.

Methods: The observational case study took place in Cebu, Philippines during 2005 to 2010. A standardized questionnaire was used to collect data for 440 patients entering the Cebu Skin Clinic. This included, but were not limited to clinical findings (multibacillary, MB or paucibacillary, PB), contact history (known, whether inside or outside the household), employment status, age, gender, civil status and water sources (deep well, artisan pump, chlorinated, spring or river) for drinking, cooking, bathing and washing for the past 20 years. Each patient sought treatment for leprosy, no cohorts were included. Due to the high density of categorical variables, the Fisher’s Exact Test was utilized to check for independence. A chi squared test was not reliable as some tables included cell counts that were too small.

Results: Preliminary analysis indicated non-independence between historical water sources and whether or not the patient knew someone else with leprosy. There was also non-independence occurring between the conditional variable, “known outside contact”. This required further investigation. Chlorinated water was found as a low risk source. Chlorinated water users were 1.36 more likely to NOT know someone else with leprosy compared to all other water type users. Chlorinated water users were also on average, 1.87x more likely to NOT know someone outside the household, given that they knew someone else who was infected. Employed individuals were often more infectious (of MB type) than unemployed individuals. Males were also predominantly the more infectious individuals than their female counterparts, even when controlling for employment status.

Conclusion: Patients using chlorinated water were less likely to know someone outside the household, than those not using chlorinated water. The source may vary for each patient and remains unclear. Employed subjects were more likely to be MB than the unemployed, likely spreading or being infected at their workplace. Males appear to act as the infectious cases (MB) more commonly than females. In Cebu, males are the breadwinners, with a much higher proportion being employed than females. However, even when employment status was controlled, within the employed population, gender held no weight. Yet in the unemployed group, males were still more likely to be MB than their female counterparts. Perhaps males are more active outside of the household, have a weaker immune system, or some combination of these factors.

These collective findings lend themselves to further community based investigations to clarify whether the factors identified have a direct or indirect role in transmission of leprosy or if there are other unobserved variables.
Results: Recent studies state that even after years of deployment of MDT, reservoirs of cases not diagnosed remain as a source of infection of the disease. Most epidemiological studies by means of Polymerase Chain Reaction (PCR) in collections of soil show that there are no human reservoirs of M. leprae, and there are some environments favorable to the survival of the pathogen, as well as other factors conducive to the transmission. The mycobacterium remains viable and maintains sources of infection of the disease, especially in humid places. The humidity and conditions of rain probably help the bacteria to survive longer in the environment. The M. leprae could survive outside its main host, by means of protocols of free life that can run as bacilli ponds, facilitating the survival of bacilli in environment when expelled of human host for up to 4 four days. It also survives in water that characterizes as an important reservoir of bacilli. It is evident relationship between leprosy incidence with temperature and humidity. M. leprae viable for up to 36 (thirty six) hours in the environment, or by approximately 09 (nine) days in temperatures of 36.7 °C, and humidity average out 77.6 %. In tropical regions, in the nasal secretions of multicellular bacilli patients remain viable for up to nine (09) days, and in moist soil, environment temperature, for up to 46 (forty six) days. There were two experiences, differences on the effects of drying of the bacillus during dry rainy and seasons. In the first experiment, the material was subjected to drying in the months of March and April, when the atmospheric humidity dropped from 28 to 44 %, these bacilli not survived for more than 14 (fourteen) days. During the rainy season of monsoon in August and September, the atmospheric humidity between 72-80 %, the bacillus survived at least 28 (twenty eight) days.

Conclusion: The main meteorological factors influencing the dynamics of the M. leprae are variations in the temperature and pluviosity. There are however, numerous difficulties in the establishment of a standard seasonal slayer, maintenance of bacilli in the environment and weather variables.

P.239

Presentation Time: Tuesday 17/09/2013 at 13:30 – 15:40
Abstract Topic Name: Prevention of Disability
Presentation Screen Number: 4
Presenter: Dr Annamma John

EARLY DETECTION OF SENSORY NERVE FUNCTION IMPAIRMENTS IN THE FIELD

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Introduction: Nerve Function Impairment (NFI) distinguishes leprosy from other diseases in several ways: it is insidious, often painless, generally neglected by the affected person and his/ her family, progressed not treated, and results in irreversible nerve damage. Motor and sensory nerve function impairment are one of the most challenging complications of leprosy, and if not detected and treated early, lead to serious medical and social consequences for the affected person. Preventing permanent disabilities due to nerve function impairment thus remains a major concern in leprosy control. The decline of nerve function can take place before, during and/ or after leprosy treatment. Early detection (within 6 months) and corticosteroid treatment may prevent further deterioration in nerve function. This constrains us to use clinical experience and tools astutely and effectively to promote early detection of nerve function impairment in the field in cost effective ways, without depending on expensive laboratory tests or expensive equipment which are available only in specialized centers. This study focuses on sensory testing for fine touch as a tool to detect and prevent early diagnosis of NFI.

The aim of the study is to assess the fine sensation of palm and sole to detect NFI before the loss of protective sensation, which is routinely measured in leprosy programmes and to correlate the NFI with specific demographic, clinical and social factors.

Methods: This is a prospective cohort study conducted at seven Leprosy Mission Hospitals located in different states in India. All newly diagnosed leprosy patients, registered between March 2011 and April 2012 for Multi Drug Therapy were included. All patients had detailed history taken along with charting and Voluntary Muscle Testing (Sensory Testing (VMT/ST)). The sensation was measured using 0.2 gm Semmes Weinstein filaments for palms and 4gm for soles, first, followed by 2gm. Semmes Weinstein filaments for palms and 10gm for soles. On each hand, four points on the ulnar nerve and six points on the median nerve were tested. Individual Patient Forms were filled for each patient included in the study and the data was entered in Excel. And the data analyzed in SPSS version 16.

Results: Of the 374 patients included in the study 117 had sensory nerve function impairment, of these 58 had lost both fine and protective sensation, 37 had mixed results and 22 patients had loss of fine touch sensation with protective sensation intact.

Conclusion: These 22 (19%) patients would have been missed in the normal leprosy programme protocol which uses 2gm and 10 gm Semmes Weinstein filaments for testing sensory loss before initiating steroid therapy. Further research is needed to determine whether testing for fine sensation with 0.2 gm and 4 gm. Using Semmes Weinstein filaments for sensory testing in the field, would be a cost effective method to enhance the prevention of disability, by detecting NFI at an earlier stage followed by steroid therapy.

P.241

Presentation Time: Tuesday 17/09/2013 at 15:40 – 15:50
Abstract Topic Name: Prevention of Disability
Presentation Screen Number: 4
Presenter: Siramas Rodchan

A SURVEY ON DISABILITY, ECONOMIC, AND SOCIAL PROBLEM OF LEPROSY AFFECTED PERSONS IN LOW PREVALENT AREA: KANCHANABURI PROVINCE, THAILAND

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Introduction: According to information obtained from leprosy related officers, it was found that people affected by leprosy who had been discharged from treatment suffered deteriorating physical disability and socio-economic problems. Apart from leprosy colony, some of them were living in general community. This study was, therefore; conducted in order to survey the physical disability and socio-economic problems of people affected by leprosy who were living in Kanchanaburi province, Thailand.

Methods: Rapid Disability Appraisal toolkit (RDA toolkit) was used in this study. The RDA toolkit consisted of 7 data collection tools which were related to disability screening, personal information, impairment data, activity limitation, social participation restriction, stigma, and discrimination. After disability screening of 56 people affected by leprosy, 26 of them had primary problem in daily activity. Descriptive statistic was used to describe primary data. Independent – Sample T- Test, One- Way ANOVA, and Pearson’s product moment correlation coefficient were used to analyze the association between two variables. Stepwise multiple regression analysis was used to analyze multiple independent variables.

Results: Among 26 people affected by leprosy, there were male more than female, All of them were over 61 years old. Most of them were married living with families of not more than 4 members. Highest education of 65.4% of them was primary school. Most of them were unemployed and living in shelters or small houses. 73.1% of them earned income not more than 5,000 baht per month. 50% of them were in debt with more than 50,000 baht per person in most of them. 80.8% of them used to be diagnosed as having MB leprosy and had been discharged for more than 6 years ago. More than half of them had disability grade 2. Most of them did not have ulcers or wounds, and assistant devices. There were no activity limitation, no participation restriction, and no recently discrimination in most of them. However, more than half of them had perceived stigma. Potential predicting factors of activity limitation were having disability grade 2, low economic status. Potential predicting factors of social participation restriction were having severe disability and un-employed.

Conclusion: Although living in low prevalent area that may not have problem in terms of leprosy transmission, people affected by leprosy are still in need of disability survey in order to gather information regarding their living conditions and problems that may be a result from leprosy. It was suggested by the author that appropriate need assessment should be conducted among this group of people affected by leprosy in order to formulate a plan of action aiming to improve their quality of life in the long run.
Results: The proportion of disability was quite high among the studied population. About 25 (22.5%) had grade-1 disability while 39 (35.1%) had grade-2 disability. Males 23 (54.9%) were more affected than females 17 (43.5%). Patients with pure neuritic type of leprosy 10(9%) and 39 (37.5%) had multi-bacillary leprosy. Among the total number of patients, 32 (82%) were manual labourers. Grade 2 disability was higher among patients aged 26: 55yrs 24 (61.5%) and those who had more than 5 skin patches 33 (29%).

The nerves commonly affected were Ulnar 62 (22%), Common Peroneal 62 (22%) and Posterior Tibia 65 (22%) nerves. The feet were the commonly involved site with nerve function impairment. Sensory nerve function impairment (NFI) was the common cause of disability in both hands (32%) and feet (37%) followed by motor NFI (hands 28.8%, feet 33%). Both in hands and feet males suffered more than the females in both sensory NFI (hands 40 vs 23.9%; feet 41.6% vs 33.3%) and motor NFI (hands 40 vs 15.6%; feet 21.6 vs 13.7%). Cracks/wounds (grade-2) were found more in feet than hands (11.7 vs 7.2%). In the eyes 11.7% had lagophthalmos which was more in males 7 (15%) than females 4 (7.8%). There is loss of eyebrow in only one female patient.

Conclusion: Disability is common among leprosy patients. The proper identification of Leprosy patients with grade-1 disability and pure neuritic type of leprosy should be the priority focus to prevent disability at the earliest opportunity. Neurological examination of commonly affected peripheral nerves should be mandatory so that pure neuritic leprosy and grade-1 disability are not missed. Information Education and Communication at all levels i.e., individual, community, patients and health personnel for early and timely diagnosis of leprosy, starting MDT and adopting proper preventive measures such as self-care in newly diagnosed leprosy patients should be the focus of the National Tuberculosis and Leprosy Control Program. This will ensure that the country meets the WHO enhanced global strategy target (year 2011-2015) to reduce the number of new leprosy cases with grade-2 disability.

LITERATURE REVIEW - LEPROSY CONTROL IN URBAN SETTINGS

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Introduction: Rapid urbanization bring with it own challenges like migration, marginalized underserved population especially in slum and peri-urban areas, difficulties in accessibility to health services in spite of high density of service providers and lack of coordination.

Methods: The purpose of the review is to identify the issues in urban leprosy control and the interventions and approaches to strengthen Leprosy Services in Urban Localities. Relevant literature is identified and synthesized. The thematic areas are Case Detection; Case Management including disability care; Stigma; Community involvement and Participation of persons affected by leprosy and Research. Criteria for inclusion and exclusion defined on the basis of relevance, study quality and special innovative features. Twenty two Research Articles from Scientific Journals from 1994 onwards were reviewed.

Results: The review revealed that an integrated health program involving community is needed in urban slums to control leprosy using a variety of resources including medical colleges and Private Practitioners. Studies related to anthropology are best known as a route to understand the complex socio-cultural, historical and political implications of leprosy.

Conclusion: There is a need to initiate programmatic strategies and interventions for providing leprosy services in urban localities through the urban health establishments involving community based organizations. Social awareness need to be enhanced to reduce stigma and to bring the people affected by leprosy into mainstream of society.
in leprosy. After introducing themselves and explaining the purpose of the activity, a session to raise awareness was carried out using flip charts and public address system. Then screening for cardinal signs was carried out by the staff and health education given as appropriate.

Results: Twenty eight night shelters were surveyed and the total number of individuals examined was 1069 (83%) out of 1296 enumerated. From those examined 1 new multi-bacillary case was detected and two people who had leprosy and were released from treatment. The new case was counselled and educated about the disease and referred to the nearest Municipal Clinic.

Conclusion: This strategy to detect new leprosy cases is cost effective as most of the people who take refuge in night shelters are migrants from states like UP, Bihar, Jharkhand and Chhattisgarh where leprosy is more prevalent than other parts of India. Conducting surveys in night shelters could be a helpful tool for early detection of leprosy and the first point of contact and intervention among the temporary / migrant population. Overcrowding and ill ventilation may be a conducive environment for spread of both Leprosy and TB, hence early intervention would arrest the transmission of both the mycobacterial diseases.

P-282
Presentation Time:  Tuesday 17/09/2013 at 15:30 – 15:40
Abstract Topic Name:  New Diagnostic Tools
Presentation Screen Number:  6
Presenter:  Prof Liudivia Saroyants

DETECTION OF M.LEPRAE SPECIFIC PCR TESTING OF LEPROSY PATIENTS AND HOUSEHOLDS CONTACTS

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Introduction: Leprosy is a chronic disease caused by infection with Mycobacterium leprae. Now early detection of preclinical disease is a very important part of early diagnosis of leprosy. We have applied PCR to identify M.leprae from slit skin smears, nose swabs and skin biopsies of human leprosy patients, family members, other contacts and healthy controls. The present work aims at developing PCR technology by using ribosomal RNA genes as a target.

Methods: Samples taken from subjects suspected as having leprosy, leprosy patients, contacts were examined by using two Methods: Ziehl –Heisen stained samples were examined under a light microscope. Biopsies of the skin were also obtained to further evaluate the location of bacilli in the skin. DNA was extracted from the same samples. The PCR target was the 16S rRNA gene of M.leprae.

Results: M.leprae DNA was not detected in 4 biopsies collected from the households of leprosy patients. The fact that the test was correctly performed was indicated by the presence of M.leprae in 19 skin biopsies from MB patients as well as M.leprae obtained historically from skin biopsies. PCR studies revealed that 2 of 77 patients had M.leprae DNA on swabs obtained from the nasal mucosa indicating that both anatomical sites may contribute to transmitting leprosy. Ninety contacts and healthy controls were also tested for exposure to M.leprae by analyzing nasal secretions by PCR. All the contacts tested were negative for M.leprae DNA. PCR was negative in all microscopy negative smears from 37 treated leprosy patients and 8 households of leprosy patients and in one case PCR was positive of microscopy negative smears.

Conclusion: The detection of new positive contacts carrying M.leprae DNA underlines the effectiveness of the PCR assay. Further studies are ongoing to detect M.leprae in the environment samples.

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Presentation Time:  Tuesday 17/09/2013 at 15:40 – 15:50
Abstract Topic Name:  New Diagnostic Tools
Presentation Screen Number:  6
Presenter:  Philip Suffys

EXPERIENCE ON GENOTYPING FOR DRUG RESISTANCE OF MYCOBACTERIUM LEpraE IN BRAZIL

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Introduction: Leprosy is a public health problem in Brazil having almost 40,000 new cases each year. Leprosy release is defined as the occurrence of signs of clinical activity after cure and no response to cotrimoxazoles. Although this is a relative rare event, when due to resistance to the major drugs dapsone, rifampicin and clofazimine, such cases could complicate disease control.

Data on the frequency and evolution of primary and secondary resistance are scarce but isolates of M.leprae exhibiting resistance against an (R) or multiple (MDR) have been described in Brazil. The WHO has established a program in 2008 to monitor the emergence of drug resistance in the treatment of leprosy, establishing a sentinel surveillance network and using PCR and sequencing, in Brazil being coordinated by five reference laboratories.

Methods: DNA was extracted at Fiocruz (RJ) from samples of 117 patients with relapsed leprosy. 90 multibacillary and 27 paucibacillary, 85 being skin biopsy and 32 of slit skin smears, from patients residents of different regions of Brazil were subjected to sequence analysis of the rpoB, folP1 and gyrA associated with drug resistance to rifampicin, dapsone and ofloxacin, followed by comparative analysis of the tape GenoType LepraEDR kit (Hain, Gmbh), based on reverse hybridization and colorimetric detection. This kit allows the identification of wild type and some mutant alleles of M.leprae rpoB, folP1 and gyrA and was designed for use on processed skin biopsies samples from MB cases.

Results: Single nucleotide polymorphisms (SNPs) in rpoB, folP1 and/or gyrA were observed after the sequencing in four of the 117 cases. In folP1 mutation was CCC to CCG at codon 55 (Pro to Arg) while for rpoB, SNPs occurred at codon 531, two cases presenting KTG to TGG (Ser to Met), a TGG to TTG (Ser to Phe) and a TGG to TGG (Ser to Leu). Two cases also presented mutations in gyrA, being at codon 91 GTA GCA (Ala to Val). When submitting these samples to the GenoType LepraEDR kit, only good results were obtained when dealing with MB samples and three of the four resistant cases were correctly identified by the kit, the fourth was a PB case and results were inconclusive. We are now analyzing a second batch of samples that were prepared at the Instituto Lauro de Souza Lima (SP) for evaluation of DNA extraction procedure and sequence interpretation on the sensitivity and specificity of the kit.

Conclusion: The result obtained comparing sequence analysis with the commercially available kit GenoType LepraEDR were good in the case of MB samples, both regarding sensitivity and specificity and suggest that this kit could be an additional tool of supporting the surveillance of drug resistance in leprosy endemic regions. However, because all procedures were performed in single lab and our preliminary data from the batch of a second lab call for caution during interpretation of the results and possible differences between the two genotype-based assays.
P-141
Presentation Time:  Tuesday 17/09/2013 at 15:30 – 15:40
Abstract Topic Name:  History of Leprosy
Presentation Screen Number:  7
Presenter:  Raj kumar Shah

SOCIAL INFLUENCING

R. K. Shah 1,2
1organization, organization, kathmandu, Nepal

Introduction: INFLUENCING FACTORS TO EMERGE MISCONCEPTIONS OF LEPROSY AND CAUSING SOCIO ECONOMIC DETERIORATION IN

Methods: Leprosy is a chronic, communicable and oldest disease known to mankind caused by Mycobacterium leprae. This disease is distributed worldwide but endemic in developing countries, especially in South Asia which is associated with socio economic aspects. Man will not die with this disease but it causes disability and develop permanent deformity. Nepal government established Leprosy Division to work from 1960 with around 100,000 leprosy cases and started eradication campaign from 1962 to 1982. This drug cured around 167,000 people from leprosy and currently 2,430 people are under treatment for leprosy disease. More than 3300 cases diagnose as new case per year and 3.47 percent disability grade II and 6 percent are the children under 14 years among the new cases. More than 47,000 people with leprosy affected have permanent disability/deformity and community people easily recognize them.

Results: Existing misconceptions disfigurations and stigma are the main causes the deteriorating socio economic condition of leprosy affected people is a major objective of this study. All this information obtained from different books and literature regarding leprosy disability and Community Based Rehabilitation (CBR) and also sharing the experiences from staff of Anandaban Hospital and the patients who attended for leprosy treatment are the main source of information as the main methodology of this paper. Culture & religious influences and due to these disfigurations,

Conclusion: leprosy affected people get isolation/segregation from the community. There are social, economical, cultural, food habits, legal and other different misconceptions that still exist in our society regarding leprosy affected people. These misconceptions, isolation/segregation and stigma are the main causes deteriorating their economic and social condition from society.

P-154
Presentation Time:  Tuesday 17/09/2013 at 15:30 – 15:40
Abstract Topic Name:  Microbiology
Presentation Screen Number:  8
Presenter:  Mrs Am Sales

SINGLE PLaCiaE LEsioN SuSPEcTED of LEPROSY: DO MOLEcULAR ASSAYS AiD DiAGNOSiST

R. R. Barbieri 1, A. Miranda 2,*, B. Kac 2, A. M. Sales 2, J. A. Nery 2, S. Moreira 2, M. O. Moraes 2, M. O. Moraes 2, M. O. Moraes 2, M. O. Moraes 2
1 Evandro Chagas Research Institute, 2Leprosy Laboratory, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil

Introduction: In 2010, more than 240,000 new cases of leprosy were registered in the world. Despite declining detection rates in recent years, leprosy remains endemic in tropical regions. The disease diagnosis is based on clinical aspects, on positive bacteriological index in skin smear and on typical histopathological features. In paucibacillary cases, rarely bacilli can be detected and histopathological examination is passive to interpretation by the pathologist, especially when the inflammatory infiltrate and an unidentified nerves; granulomatous inflammatory infiltrate with preserved cutaneous nerves or non-granulomatous inflammation is associated with the patients' clinical details performed histopathological analysis of a third pathologist. The fragments of skin stocked at -80º C were carried out for DNA analysis of a third pathologist. The fragments of skin stocked at -80º C were carried out for DNA extraction using DNeasy Kit according to the manufacturers recommendations. The levels of M. Leprae AgB5B and 163 RNA in skin biopsy specimens were estimated using real-time TaqMan qPCR amplification.

Results: All patients were from the metropolitan region of Rio de Janeiro and 23% had a history of contact with patients diagnosed with leprosy. Their ages range from 12 to 77 years (mean 45.7) and 59.10% were male. The main body segment affected were the limbs, in 85.28% of cases, with the mean size of 5.47 cm. From the 66 cases studied, 51.5% were classified as HP, 12% as MP, 7.9% as LP for the diagnosis of leprosy, and 15% were classified as OD. The PCR was positive in 69.7% of the sample. Among the PCR positive patients, 82.9% were classified as HP and MP of having leprosy.

Conclusion: We show that in the cases previously classified as leprosy (AP and MP), PCR do not change the therapeutic decision. However in patients classified as BP or OD, the PCR changed the clinical decision in 26% of cases. We propose that molecular assays can become a useful tool for the diagnosis of paucibacillary leprosy, especially regarding inconvenient histopathological diagnosis.

P-157
Presentation Time:  Tuesday 17/09/2013 at 15:45 – 15:50
Abstract Topic Name:  Microbiology
Presentation Screen Number:  B
Presenter:  Dr Cleverston Soares

DERMATOFIBROMA ORIGINATING IN CUTANEOUS LESIONS OF LEPROSY: REPORT OF 18 CASES.

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1Pathology, 2Biology, Lauro de souza Lima Institute - ILSL, Bauru, Brazil

Introduction: Dermatofibroma (fibrous histiocytoma) is one of the most common soft tissue tumors occurring in the skin. The literature about the dermatofibroma being a reactive or neoplastic lesion is controversial. There are reports of association with insect bites, trauma and vaccination. In general it consists of single lesions occurring on the trunk and limbs, smaller than one cm in diameter, with raised and reddish-brown surface. Several histological variants and eruptive lesions have been described in the context of immunosuppression, associated with HIV-infection and highly active antiretroviral therapy (HAART). In this study, we describe 18 cases of dermatofibroma apparent on previous leprosy lesions.

Methods: We retrospectively review the medical records and 205 biopsy specimens of patients who were diagnosed with dermatofibromas in the Department of Pathology at Lauro de Souza Lima Institute between January, 2003 and December, 2012.

Results: Among the 205 biopsies, 18 samples from 17 patients (seven female and 10 male) developed on previous leprosy lesions. Lesions occurred in the lower limbs (8/18), upper limbs (6/18) and trunk (4/18). All patients were classified according the Ridley-Jopling’s criteria in the lepromatous side during or after treatment (10 borderline lepromatous and seven lepromatous). A review of reports showed that ten of 17 had reactive episodes (eight erythema nodosum leprosum and two reversal reaction). The dermatofibromas showed classic histologic pattern characterized by proliferation of spindled or stellate mesenchymal cells in the dermis and subcutaneous layers, in storiform arrangement associated with hyperkeratosis, acanthosis and hyperpigmentation of the basal layer of the epidermis. In all cases, the dermatofibromas were located in the center of the lesions and were surrounded by regressive/residual leprosy lesion. The bacillary index showed lower number of bacilli fragmented within dermatofibromas compared to primary leprosy lesions located on the periphery. The immunohistochemistry panel for CD34 (negative or weak), factor Xllla (positive) and smooth muscle actin (positive) was performed in inconclusive cases.

Conclusion: Dermatofibromas can originate in an environment of leprosy lesions, usually in the lepromatous side lesions and after reactive episodes. The same can be mistaken clinically and histologically with histoid lesions, active hansenosmas (relapse) and dermatofibromatosa prurubeners. The histological characteristics associated with bacillary index and sometimes immunohistochemical study, are sufficient for defining the diagnosis.

P-161
Presentation Time:  Tuesday 17/09/2013 at 15:45 – 15:50
Abstract Topic Name:  Microbiology
Presentation Screen Number:  B
Presenter:  Malika Lavania

DETERMINATION OF TRANSMISSION PATTERNS OF CIRCULATING MYCOBACTERIUM LEPRAE STRAINS AMONG LEPROSY PATIENTS IN AREAS OF HIGH LEPROSY PREVALENCE IN INDIA USING VNTR AND SNP TYPING

M. Lavania 1, R. P. Turankar 1,*, V. S. Chaitanya 2, U. Sengupta 2, R. S. Jadhav 1, 4, S. Abraham 1, L. Das 1, F. Darlong 1
1Stanley Browne Laboratory, The Leprosy Mission Community Hospital, 2Stanley Browne Laboratory, 3Formerly at Stanley Browne Laboratory, The Leprosy Mission Hospital India, Delhi, 4Microbiology, Government Institute of Science, Mumbai, 5The Leprosy Mission Hospital, Naini, Allahabad, 6The Leprosy Mission Hospital, Purulia, India

Introduction: The epidemiological and clinical data were collected from medical records. Two independent pathologists blinded to the patients' clinical details performed histopathological analysis. The following parameters were used: as probability score (Ridley and Jopling,1966); High Probability (HP): inflammatory infiltrate invading cutaneous nerves; Medium Probabability (MP): granulomatous inflammatory infiltrate and unidentified nerve bundles; Low Probability (LP): granulomatous inflammatory infiltrate with preserved cutaneous nerves or non-granulomatous inflammatory infiltrate and an unidentified nerves; Other Dermatodes (OD): histopathological features typical of other dermatological diseases. Disagreeing cases were defined based on the analysis of a third pathologist. The fragments of skin stored at -80 ºC were carried out for DNA extraction using DNeasy Kit according to the manufacturers recommendations. The levels of M. Leprae AgB5B and 163 RNA in skin biopsy specimens were estimated using real-time TaqMan qPCR amplification.

Results: All patients were from the metropolitan region of Rio de Janeiro and 23% had a history of contact with patients diagnosed with leprosy. Their ages range from 12 to 77 years (mean 45.7) and 59.10% were female. The main body segment affected were the limbs, in 85.28% of cases, with the mean size of 5.47 cm. From the 66 cases studied, 51.5% were classified as HP, 12% as MP, 7.9% as LP for the diagnosis of leprosy, and 15% were classified as OD. The PCR was positive in 69.7% of the sample. Among the PCR positive patients, 82.9% were classified as HP and MP of having leprosy.

Conclusion: We show that in the cases previously classified as leprosy (AP and MP), PCR do not change the therapeutic decision. However in patients classified as BP or OD, the PCR changed the clinical decision in 26% of cases. We propose that molecular assays can become a useful tool for the diagnosis of paucibacillary leprosy, especially regarding inconvenient histopathological diagnosis.
Introduction: Leprosy is still a major health problem in India with highest number of cases. Multiple Locus Variable Number of tandem repeat (MLVA) analysis and single nucleotide polymorphism (SNP) has been proposed as a tool of strain typing for tracking the transmission of leprosy. However, empirical data for a defined population from scale and duration were lacking for studying the transmission chain of leprosy. SNP sub typing and MLVA was applied on 10 VNTR loci of Mycobacterium leprae isolated from the above samples for strain typing. In addition, phylogenetic analysis was done on variable number of tandem repeats (VNTRs) data sets.

Methods: Seventy slit skin scrapings were collected from Purulia (West Bengal), Miraj (Maharashtra), Shahada (Delhi) and Naini (UP) hospitals of The Leprosy Mission (TLM) Trust, India. Along with the strain typing, conventional epidemiological investigation was also performed to trace the transmission chain.

Results: Diversity was observed in the cross-sectional survey of isolates obtained from these patients. Similarly in fingerprinting profiles was observed in specimens of cases from same family or neighbourhood locations indicating a possible common source of infection. The data suggest that these VNTRs including subtyping of SNPs can be used to study the sources and transmission chain in leprosy, which could be very important in monitoring of the disease dynamics in high endemic foci.

Conclusion: The present study strongly indicates that multi-case families might constitute epidemic loci and the main source of M. leprae transmission in villages, causing the predominant strain or cluster infection leading to the spread of leprosy in the community.

P-068

Presentation Time: Tuesday 17/09/2013 at 15:30 – 15:40
Abstract Topic Name: Training in Leprosy
Presentation Screen Number: 9
Presenter: Fatima Moll Cervera

TRAINING IN LEPROSY AT THE SANATORIUM OF FONTILLES (SPAIN)

F. Moll Cervera 1,*, J. R. Gómez 2, P. Torres 2
1Asociación FONTILLES, Vall de Lagauret, Spain

Introduction: The Sanatorium of Fontilles (Spain) was inaugurated in 1909 with the aim of attending the social and economical needs of the leprosy patients. All its activities were related with the disease and so since the very beginning research was initiated on treatment, diagnostics and the publication of a journal began in 1944 dedicated to leprosy and still the only one of its kind in Spanish. Also, very important was the establishment of annual medical leprosy courses at the sanatorium. This poster collect the experience on the Sanatorium in training from the first year of its courses in 1948.

Methods: The leprosy courses held at the sanatorium for different levels of health staff, number of participants, collaborations with other institutions and the progressive introduction of training on other dermatological diseases are described.

Results: In 1948 the Spanish Social Antileprosy Committee with support from the National School of Health requested Fontilles to start training on leprosy for dermatologists. This initiative was acknowledged by the Ministry of Education and The Pan-American World Health Organization, who granted during those years 34 students scholarships to facilitate their participation. In 1958 the Sovereign Military Hospitalier Order of St. John of Jerusalem of Rhodes and of Malta and the Spanish government signed an agreement that stated the firm collaboration of the Order in the economical support of these courses and the start of a new annual course for religious personnel and missionaries. Both courses are held every year at the sanatorium and training on other dermatological tropical disease has been included. This second course has extended participation to nurses, physiotherapists, social workers and laboratory staff. 55 Medical and 49 Paramedical courses have been organized with a total of 1545 and 1631 participants respectively, 9% of the Medical and 41% of the Paramedical Course were foreign students. The Military and Hospitalier Order of Saint Lazarus of Jerusalem started in 2005 to offers grants for foreign students and has awarded at present 18.

Fontilles also offers training in countries where it has health cooperation projects (Nicaragua, Cuba, Mexico, and Rwanda) and collaborates with other prestigious Spanish and international Institutions on training.

Conclusion: The Sanatorium of Fontilles has dedicated exclusively all its activities to a specific disease and this has enabled it to work on research, training and scientific publications. In recent years work on other dermatological tropical disease has also been incorporated

P-071

Presentation Time: Tuesday 17/09/2013 at 15:50 – 16:00
Abstract Topic Name: Training in Leprosy
Presentation Screen Number: 9
Presenter: Josef Chukwu

HOW LARGE IS THE KNOWLEDGE AND ATTITUDE DEFICIT ON LEPROSY? A SURVEY OF FINAL YEAR MEDICAL STUDENTS AND MEDICAL DOCTORS IN SOUTHEASTERN NIGERIA

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1Medical, GLRA Nigeria, 2Community Medicine, University of Nigeria Teaching Hospital, Enugu, 3Community Medicine, Imo State University Teaching Hospital, Orlu, 4Community Medicine, Abia State University Teaching Hospital, Aba, 5Community Medicine, Ebonyi State University, Abakaliki, 6Community Medicine, Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria

Introduction: According to some accounts, southern Nigeria was home to epidemics of leprosy in the 1930s and 1940s. One observer put the estimated prevalence at the time at an astonishing 2-30% (Russell, 1938: 66 – 71). The Nigerian TB and leprosy control programme achieved the WHO elimination target at the national level in 1998. Despite the achievement of this milestone, the county continues to notify more than 3,000 cases annually, 80% of them with visible deformities at diagnosis.

There is ample anecdotal evidence that young doctors and general health workers at health facilities including some University teaching hospitals often miss the diagnosis of leprosy when patients present to them. This contributes to late diagnosis with potential implications for individual patient care and continued transmission in the community.

As many of the ‘old’ crop of leprosy workers exit the stage, it becomes necessary to ascertain to what extent the torch is being passed on to the new generations of health workers to safeguard quality leprosy control services. To our knowledge, no systematic attempt has been undertaken in this country to explore this problem. This survey of knowledge and attitude of final year medical students and young medical doctors at Universities and tertiary health facilities in south-eastern Nigeria is GLRA’s contribution to this imperative.

Methods: A descriptive cross sectional study of all final year medical undergraduates and medical doctors (interns) in all the six universities (medical schools) and eight tertiary health facilities in south-eastern Nigeria was done. The study was conducted in Abia, Anambra, Ebonyi, Enugu and Imo States. Pre-tested and validated self – administered questionnaires were used to obtain
Results: Out of 1019 respondents (561 students and 458 doctors), knowledge was poor with a median score of 28.59% and 31.56% respectively. Among the medical undergraduates, 0.4% had good knowledge, 0.7% average knowledge and 98.9% had poor knowledge of leprosy diagnosis and treatment. Similarly, 0.4% of doctors had good knowledge, whereas 7.5% and 92.1% had average and poor knowledge respectively. Only 38% of the students had good attitude and 62% poor attitude, whereas 50.4% doctors had good attitude and 49.5% poor attitude. About 25.1% of students and 34.3% of doctors were willing to work in a leprosy clinic. Only 14.3% of students and 2.0% of doctors ever had a formal training and clinical demonstration on leprosy. Those who had ever examined at least one leprosy case were 17.3% of students and 36.9% of doctors. Respondents who indicated that people affected by leprosy should not be allowed to freely participate in community activities until they complete their treatment were 71.3% of students and 63.9% of doctors.

Conclusion: The study highlighted a very large deficit in knowledge of and attitude to clinical diagnosis and treatment of leprosy among young medical professionals in South-eastern Nigeria. A vast majority of them never examined a leprosy case or had a formal training on leprosy management in the course of their medical education or practice.

P-459

Presentation Time: Tuesday 17/09/2013 at 15:30 – 15:40
Abstract Topic Name: Chemotherapy – Newer Drugs
Presentation Screen Number: 10
Presenter: Indriyo Agusni

ONE YEAR EVALUATION OF PREVENTIVE TREATMENT IN SUBCLINICAL STAGE OF LEPROSY

I. Agusni 1, C. R. Praekoeswa 1, M. Y. Listiawan 1, N. Koeswartedjo 1, D. Adiaty 1, R. Wahyuni 1, I. Iswahyudi 1, S. Izurni 1

1Dermatology, Airlangga University, Surabaya, 1Sumberglagah Leprosy Hospital, Mojokerto, 1Inst. of Tropical Disease, Airlangga University, Surabaya, Indonesia

Introduction: Healthy individuals live in leprosy endemic area without any sign of leprosy, often show high titer of specific antibody to M.leprae. Since the level of this antibody is related to the antigen load, this situation is considered as Subclinical stage of Leprosy. Due to its potency to progress to manifest leprosy cases after several years, a preventive measure is needed. Children is the highest priority group who need the prevention measures. The aim of this study is to evaluate the results of preventive treatment to school children with high titer of specific antibody to M.leprae.

Methods: Serological surveys of leprosy were conducted to 5066 school children who live in two leprosy endemic areas of East Java for screening. Three hundred and two school children (193 from Ra’a Island and 109 from Nguling subdistrict) were detected as sero (+++) with high anti M. leprae PGL-1 antibody titer (>3,000 u/ml ELISA). A preventive treatment using Rifampicin 300mg daily combined with 250mg Clarithromycin daily for 10 days were given, continued with the same drugs intermittently every two weeks for 3 months. Clinical examination and serological examination will be evaluated every year until five years.

Results: After one year evaluation, clinically none of these children become a manifest leprosy and the majority of children (179/302 or 59.6%) showed a decrease in the antibody level to leprosy. But some of these children (41/302 or 13.6%) still showed increasing level of specific antibody. All the medications were well tolerated by these children and only a slight side effect of these drugs were reported.

Conclusion: Preventive therapy is an alternative method for solving the problem of continuously new leprosy case detection rate (NCDR), that remains stable in the last decade. Preventive regimen of leprosy using combination of Rifampicline and Clarithromycin in subclinical leprosy showed a good result after one year evaluation. The study is still in progress for a five years evaluation.
EVALUATION OF NERVE FUNCTION IMPAIRMENT (NFI) IN MULTIBACILLARY (MB) LEPROSY PATIENTS ON MULTIDRUG THERAPY (MDT-MB) ALONG WITH OR WITHOUT PREDNISOLONE.

G. Sahay 1,*, H. K. Kar 1

1DEPARTMENT OF DERMATOLOGY, VENERELOGY & LEPROSY, PGIMER & DR. RAM MANOHAR LOHIA HOSPITAL, NEW DELHI, India

Introduction: Due to involvement of peripheral nerves in leprosy, there is loss of sensations (touch, temperature & pain) on the skin and weakness in hands, feet & eyes leading to ulceration and other deformities. Reactive states are widely accepted as common cause of nerve function impairments (NFI) and of these, type1 is regarded as the leading cause. Sometimes, nerves are functionally impaired without development of obvious symptoms & signs of reactions including nerve pain and tenderness, and this condition is called as “silent neuropathy”. Prospective studies have indicated that multibacillary (MB) leprosy patients and those with existing impairment of nerve function are at the greatest risk of new nerve function impairments and reaction. The effects of corticosteroids in varying doses and duration for the treatment of reaction, neuritis and nerve damage have been studied in India and elsewhere and are reviewed in details by Naafs. Nerve function impairment (NFI) varies from 6–56% in newly diagnosed patients with leprosy and can even deteriorate during and after treatment as a result of leprosy reactions. Nerve damage may occur before anti-mycobacterial treatment, during treatment and even in patients who are released from treatment & labelled as ‘cured’ by leprosy programme and is a result of inflammation in the nerves due to immunological reactions. Multidrug treatment (MDT) for leprosy is primarily aimed at killing M.leprae and not at preventing nerve damage. Whereas, steroids are accepted method of medical treatment for nerve function impairment and reactions in leprosy. For many years corticosteroids, mostly prednisolone, have been used to treat NFI in leprosy patients. However, an optimal dose and duration of steroid treatment has yet to be established. Previous study (Smith WCS et al 2004) showed that Prednisolone had a significant effect in the prevention of reaction and nerve function impairment at four months, but this was not maintained at one year.

Methods: 60 multibacillary leprosy patients were enrolled in randomized double blind trial. Study group received MDT-MB for 12 months along with prednisolone 20 mg/day from the beginning of treatment for 6 months and tapering in 7th and 8th month. Control group received MDT-MB for 12 months without prednisolone. Nerve function assessment were done in both groups using clinical tests (nerve palpation, sensory testing using monofilament and voluntary muscle testing) and sensory and motor nerve conduction studies before initiation of treatment, at 8 month and at the completion of MDT (12 months). Both study and control groups were assessed at 8 months and 12 months as compared to baseline by clinical tests and nerve conduction studies. Analysis was performed using SPSS version 17. The significance of association was tested using Chi square and Fisher’s exact tests.

Results: Prednisolone had a significant effect in the prevention of reaction and nerve function impairment at 8 months and was maintained up to 12 months.

Conclusion: The use of low dose prophylactic prednisolone during the first 8 months of multidrug treatment for leprosy reduces the incidence of new reactions and sustained at one year. Patients who diagnosed as MB leprosy with impaired nerve function on NCS before starting the prednisolone not showed reversal of NFI.
## Day at a Glance
### Programme

**Wednesday 18 September 2013**

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  **Presenter:** Dr Patricia Rosa

- **O-115**  
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- **O-126**  
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**SURGICAL APPROACH TO THE DISABILITY-RELATED PROBLEMS SEEN ON EX-PATIENTS OF LEPROSY IN A COMMUNITY-BASED CLINIC**

*Presenter: Dr Masako Namisato*

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**SELECTION CRITERIA FOR RECONSTRUCTIVE SURGERY IN CORRECTION OF CLAW HAND AND THUMB DEFORMITIES IN LEPROSY**

*Presenter: Mr Karthikeyan Govindasamy*

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**THE USE OF NEURODYNAMIC TESTS FOR THE ASSESSMENT OF MECHANICAL SENSITIVITY AND MOBILITY OF PERIPHERAL NERVOUS SYSTEM IN LEPROSY**

*Presenter: Artur Gosling*

**Epidemiological Surveillance**

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**KAZAKH LEPROSARIUM - SPECIFIC OF THE LEPROSY WORK IN KAZAKHSTAN**

*Presenter: Dr Moldagali Seitalyev*

**Screen 2, 10:40 - 10:50**

**EVOLUTION OF THE PREVALENCE RATE OF LEPROSY IN THE BRAZILIAN STATES IN THIS LAST DECADE**

*Presenter: Rosa Castália França Ribeiro Soares*

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**EVOLUTION DE LA LUTTE CONTRE LA LEPRE EN REPUBLIQUE DEMOCRATIQUE DU CONGO**

*Presenter: Jean Norbert Mputu Luengu-B*

**Epidemiological Analyses**

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**EPIDEMIOLOGICAL ANALYSIS OF LEPROSY REACTIONS IN A LEPROSY CARE SERVICE IN SÃO PAULO CITY, BRAZIL**

*Presenter: Marcos Florianio*

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**PATIENTS UNDER FIFTEEN YEARS OLD · RETROSPECTIVE STUDY**

*Presenter: Dr Apolonio Nascimento*

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**PROGRESSION OF LEPROSY DISABILITY AFTER DISCHARGE: IS MDT ENOUGH?**

*Presenter: Anna Maria Sales*

**Prevention of Disability**

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**TITLE: CLINICAL PROFILE OF DEFORMITIES IN LEPROSY**

*Presenter: Balachandra Ankad*

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**PERSPECTIVES FOR COMBINING PEER-LED SELF-CARE GROUPS FOR PEOPLE AFFECTED BY LEPROSY OR DIABETES TO PREVENT DISABILITIES DUE TO INSENSITIVE FEET**

*Presenter: Erik Post*

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**DISABILITY TREND AMONG NEW CASES REPORTED TO A TERTIARY CARE REFERRAL CENTRE: SHARING EXPERIENCES FROM DELHI METROPOLIS**

*Presenter: Dr Abraham Selvasekar*

**Leprosy Control**

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**KNOWLEDGE AND AWARENESS ON LEPROSY AMONG VILLAGERS IN NANPING CITY, CHINA**

*Presenter: Qing Zu*

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**ASSESSMENT OF ADVERSE EFFECTS TO DRUGS (MINOCICLINE, OFLOXACIN AND CLOFAZIMINE) USED IN ALTERNATIVE MULTIDRUGTHERAPY FOR MULTIBACILLAR LEPROSY PATIENTS**

*Presenter: Maria Da Graca Cunha*

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**LEPROSY AMONG HOUSEHOLD CONTACTS OF LEPROSY RELAPSE CASES IN A REFERENCE CENTER IN MANAUS, BRAZIL**

*Presenter: Maria Da Graca Cunha*

**New Diagnostic Tools**

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**PREVALENCE OF M. LEPRAE INFECTION IN ARMADILLOS ASSESSED BY SERUM ANTIBODY RESPONSES**

*Presenter: Malcolm Duthie*

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**DEVELOPMENT OF LF TEST BASED ON SYNTHETIC ANTIGENS FOR THE SERODIAGNOSIS OF LEPRAE**

*Presenter: Sergey Biketov*

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**EVALUATION OF UTILITY AND APPLICABILITY OF MULTIPLEX PCR IN THE EARLY DIAGNOSIS OF LEPROSY IN EASTERN INDIAN POPULATION**

*Presenter: Umesh Gupta*

**Experiences of People and Communities**

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*Presenter: Venkata Ranganadha Rao Pemmaraju*

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*Presenter: Nchekwube Ndubuizu*

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Presenter: Sreepuram Reddy

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LEPROSY TREND IN AFGHANISTAN (15 YEARS EPIDEMIOLOGICAL ANALYSIS)

Presenter: Dr Mohammad Reza Aloudal

Human Rights and Discrimination

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EDMOND LANDRY (USPHS CARVILLE, LA 1924-1932) AN ANALYSIS OF ONE MAN'S ADVOCACY AS TOLD THROUGH HIS LETTERS

Presenter: (Emma) Claire Manes

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TOWARDS THE FULL DEVELOPMENT, ADVANCEMENT AND EMPOWERMENT OF WOMEN AFFECTED BY LEPROSY IN NEPAL

Presenter: Parwati Oli

Prevention of Disability

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A STUDY OF ULCER HEALING IN LEPROSY WITH WOUNDEX DRESSING

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ASSESSMENT OF DISABILITY CARE SERVICES AND ITS IMPACT – A FIELD BASED STUDY IN URBAN SLUMS OF MUMBAI

Presenter: Vivek Pai

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BCG VACCINATION MODIFIES MACROPHAGE TOLL-LIKE RECEPTOR-4 RESPONSE TO MYCOBACTERIUM LEPRAE

Presenter: Anastasia Polycarpou

Promoting Early Diagnosis

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SCHOOL CHILDREN IN LEPROSY CONTROL

Presenter: Yong Ning

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Presenter: Jinlan Li

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Presenter: Boosbun Chua-Intra

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CONTACTS CONTROL IN LEPROSY: A NEGLECTED OPPORTUNITY OF EARLY DIAGNOSIS

Presenter: Artur Gosling

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IMPACT OF EXTENDED CONTACT SURVEY IN LEPROSY ELIMINATION PROGRAMME IN SELECTED AREAS OF BANGLADESH

Presenter: Sheikh Hadi

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HEALTH SEEKING BEHAVIOR OF LEPROSY PATIENTS ATTENDING HEALTH SERVICES IN URBAN AREA OF CENTRAL REGION, THAILAND

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Presenter: Mr Sathish Paul

**Leprosy Control**

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**Detection and Treatment of Reactions**

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Presenter: Priscila Andrade

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Presenter: Balachandra Ankad

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Presenter: Paul Roche

**CBR**

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Presenter: Maniksha Manickam

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Presenter: Stylia Fransis

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Presenter: Dr Masako Namisato

**Social Aspects and Quality of Life**

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Presenter: Shilpa Shegaonkar

**Immunology**

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Presenter: Yulianto Listiawan

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Presenter: Ramanuj Lahiri

**Promoting Early Diagnosis**

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FINDINGS OF THE SPECIAL ACTIVITY PLAN (SAP) IN 9 HIGH ENDEMIC DISTRICTS OF GUJARAT STATE IN INDIA  
Presenter: Dr Hiren Narendraibhai Thakkar
Abstracts

Wednesday 18 September 2013

CHALLENGES
PL – 004

Speaker: Dr Diedre Prins-Solani
Title: ‘Human rights and justice’

RIGHTING WRONGS; RESTORING DIGNITY; EMBRACING JUSTICE THROUGH ACTS OF RECOGNITION

D. M. Prins-Solani 1,*

1Independent, Cape Town, South Africa

Introduction: INTERNATIONAL LEPROSY CONGRESS 2013 PANEL DISCUSSION: DIGNITY, JUSTICE AND PARTICIPATION RIGHTSING WRONGS: RESTORING DIGNITY; EMBRACING JUSTICE THROUGH ACTS OF RECOGNITION

This plenary address shall explore the theme, “Human Rights and Justice” through the bifocal lens of cultural heritage and human rights practices. It shall explore the delicate and often conflicting relationships between restoring dignity, justice and their role in the recognition and honouring of memory through the conservation of space.

Whilst human rights and justice have often been interpreted in legalistic ways, this paper wishes to push the envelope with respect to the ways in which rights and justice issues are interpreted, asserted and affirmed.

Deirdre Prins-Solani International Heritage Expert

Methods: Through the use of examples of selected sites which bear significance to communities who have been affected by stigma, exclusion and unjust treatment across the globe, this exploration shall illustrate the role of cultural heritage in strengthening and furthering a human rights agenda. These roles it shall be argued, embrace both the practice of justice and the restoration of dignity through economic means, as well as through very deep and meaningful social and psychological interventions.

Results: The place of memory landscapes and the significance they bear in transforming experiences and life approaches shall also be examined in response to current questions related to the tensions between development agendas and the conservation and safeguarding of cultural heritage.

Conclusion: Whilst human rights and justice have often been interpreted in legalistic ways, this paper wishes to push the envelope with respect to the ways in which rights and justice issues are interpreted, asserted and affirmed.

PL – 005

Speaker: Prof Mitchell Weiss
Title: ‘Understanding stigma and self-esteem’

THE NATURE OF STIGMA AND NEW CHALLENGES OF LEPROSY CONTROL

Mitchell G. Weiss

The social and cultural history of leprosy has special significance for leprosy-related stigma. As a neglected tropical disease, this relationship also holds broader significance for public health. Implementation of multidrug therapy for leprosy in the early 1980s relied on a credible assertion that leprosy can be cured. This message aimed to discourage denial that was a barrier to effective help seeking. The nature of stigma includes direct experience of discrimination from enacted stigma, anticipation of such discrimination and diminished self-esteem of an affected individual who has accepted and internalized disqualifying views of society. Approaches to lessening social stigma and internalized stigma are complementary but distinct. Furthermore, the stigma of leprosy is distinct from that of leprosy-related disabilities. Stigma research reveals a hidden aspect of the disease burden, which supports advocacy for controlling both the disease and its social impact, and guidance on how best to do that. The landscape of leprosy control is changing with the integration of leprosy treatment in primary care and prospects for rapid diagnostics. Such developments represent a challenge and opportunity. They also pose questions about mitigating social and cultural roots of leprosy-related stigma through social interventions, psychosocial support and prospects for improved detection and treatment.

PL – 006

Speaker: Zilda Maria Borges
Title: ‘Understanding being affected by leprosy’

“When I hear a person with leprosy, under a mango tree in the backyard, in a community where most people live in deprivation or those disadvantaged people with such a severe form of the disease living in pain and sadness thinking of death; I wonder where to begin to strive for quality of life. Quality of life tells me to access the common culture towards people with leprosy. I address people able to access the Human and Social Rights.”

When it comes to people with leprosy neglect is explicit and there is a lack of aesthetic and reconstructive which can greatly contribute to building self-esteem and dignity. The economic advancement for many people affected by leprosy is still a challenge, because the economic advancement today is associated with a series of professional training. However people with leprosy have significant difficulty accessing these skills. When thinking about quality of life you must think in terms of work, leisure, friends, family, health and education. Individuals with leprosy have difficulties which go beyond their physical condition and the reactions of others. So we dream of a new world without a lot of pain, with more access to professional training; a life which is more dignified, happy equal.
L-007

Presentation Time:  Wednesday 18/09/2013 at 11:00 – 12:30
Symposium Session:  New Diagnostic Tools
Presenter:  Prof Annemieke Geluk

NEW TESTS DETECTING CELLULAR- AND HUMORAL IMMUNITY AGAINST M. LEPRAE

Introduction: The need for diagnostic tests for leprosy that can be applied in non-expert settings may now be greater than ever before, due to changes in leprosy control programs and the decrease in special expertise required for (early) diagnosis of leprosy. However, there is no test available that can detect asymptomatic Mycobacterium leprae infection or predict progression of infection to clinical disease. Identification of risk factors (immunological- or genetic biomarkers) for disease development and/or onset of leprosy reactions is imperative for efficient diagnosis. Tests simultaneously detecting biomarkers specific for cellular- and humoral immunity are well-suit for diagnosis of the different clinical outcomes of leprosy.

Methods: Utilizing up-converting phosphor (UCP) reporter technology, a lateral flow assay was designed to detect human Th1 and Th2 cytokines as well antibodies. The assay was evaluated with (M. leprae-antigen stimulated) blood samples of leprosy patients and controls.

Results: The UCP-LF assay allowed detection of IFN-γ, IL-10 and anti-PGL-I antibodies in serum. Qualitative evaluation of 200 blood samples demonstrated excellent correlation with ELISA (R² = 0.92). Cytokine multiplexing and simultaneous detection of cytokine and antibody was successfully demonstrated.

Conclusions: The UCP-LF assay is a user-friendly, rapid alternative for ELISAs. This format is suitable for multiplex detection of different cytokines and can be merged with antibody-detection assays allowing simultaneous detection of cellular and humoral immunity. Thus, the UCP-LF test can cover detection of biomarkers for the full immunological leprosy spectrum.

L-008

Presentation Time:  Wednesday 18/09/2013 at 11:00 – 12:30
Symposium Session:  Other Mycobacterial Diseases
Presenter:  Mrs Bouke de Jong

THE DIFFERENTIAL DIAGNOSIS OF BURULI ULCER

Miriam Eddyani, Dissou Affolabi, Luc Brumm, Jean Jacques Roux, Didier Agossadou, Ange Dosso, Gilbert Ayelo, Françoise Portaels, Bouke de Jong, Ghislain Sopoh

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Introduction: Buruli ulcer (BU) is a necrotizing skin and bone disease caused by Mycobacterium ulcerans in certain riverine regions of West and Central Africa. In most BU endemic settings the diagnosis of BU is often made on clinical and epidemiological grounds only. However, the disease presents with a diverse range of clinical symptoms and, due to possible confusion with other skin diseases, the microbiological confirmation has an important added value. The available laboratory tests in order of increasing sensitivity are culture, direct smear examination (DSE) for acid fast bacilli, and PCR targeting the insertion element IS2404 and histopathology (with similar sensitivities). Several studies in BU endemic countries have shown that the clinical diagnosis of BU by experienced clinicians is not as straightforward as is generally thought. In the Democratic Republic of Congo for example, Kibadi et al. (2010) found that 34% of the patients with clinical and epidemiological suspicion of BU could not be microbiologically confirmed. Moreover, patients who were not microbiologically confirmed responded better to the treatment with antimycobacterial antibiotics. These unconfirmed patients most probably did not have BU but the causative bacteria of their lesions were sensitive to the antibiotics administered. The timely exclusion of BU would have avoided prolonged treatment with toxic antibiotics, and allowed for these patients to receive more appropriate antibiotic therapy targeted to their non-BU infection. Every clinical form of BU can potentially be mistaken for another condition, including necrotizing fasciitis, tropical phagedenic ulcers and, rarely, malignancies. (Janssens et al., 2005; Phanzu et al., 2010; Kibadi et al., 2010).

Moreover, in settings where the number of BU cases declines, clinical expertise will wane, likely resulting in more misclassification of patients with lesions compatible with BU. We have therefore initiated an interdisciplinary study on the differential diagnosis of BU, with the objective to establish the optimal diagnostic approach for BU suspect lesions, as well as the improved identification of patients with alternative diagnoses.

Methods: After informed consent all recruited patients are documented by mycobacteriological analyses (IS2404 PCR, DSE and culture), common bacteriological analyses (DSE and culture) and histopathology (to differentiate super-infection from inflammation and diagnose other conditions). The clinical history, prior treatment and other associated symptoms are recorded. Based on all clinical and laboratory information as well as treatment outcome, patients are classified as: (a) confirmed BU, (b) possible BU, and non BU (with either (c) confirmed or (d) unclear differential diagnosis). A clinical expert panel then makes a final diagnosis based on the original files of the patients that are classified in category b and d. This final diagnosis will serve as a “quasi gold standard” for analysis allowing us to calculate the contribution of each test to the final diagnosis.

Results: Data of the first year of recruitment of 150 patients will be presented as well as some detailed case reports.

Conclusion: The outcome of this project will allow us to design an algorithm for an improved clinical and microbiobiological diagnosis of BU and adequate management of patients. By improving the differential diagnosis of BU, more effective management of BU and non-BU patients aims to enhance patient comfort and outcome, and to preserve more toxic antimycobacterial drugs for those who need them.

L-009

Presentation Time:  Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session:  ENL Reaction 2 and Dermatology
Presenter:  Dr Sunil Dogra

ROLE OF DERMATOLOGISTS IN LEPROSY CONTROL

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Leprosy control programs, including multi-drug therapy for leprosy, have undergone significant changes over the last few years. With the process of integration of leprosy into general health services, dermatologists are more responsible for the care of leprosy patients than ever before. The dermatological services will continue to play an important role in diagnosis of the incident and remaining leprosy cases worldwide. The 7th WHO Expert Committee on Leprosy mentions the need for assigning a role to dermatologists for the elimination of leprosy. It stresses the need to include leprosy as a part of the curriculum of dermatology and to encourage dermatologists in ensuring that standard WHO MDT regimens are implemented and new cases are reported. In the changing scenario, when role of allied medical and surgical specialists like neurologists, ophtalmologists, physiotherapists, plastic surgeons, and even pathologists is being increasingly recognized, contributions of dermatologists can not be underestimated. Traditionally dermatologists have been involved in imparting clinical skills and training about leprosy to health care providers. Their role is even more pertinent in current scenario when leprosy is diagnosed based on skin lesions alone. The integration of leprosy into mainstream services offers opportunities for developing improved links between dermatologists and central leprosy clinics and regional health authorities. Leprosy programmes could become more effective by involving dermatologists in training for examination of skin lesions, impart knowledge on leprosy mimicking common dermatoses, neurological assessment, recognition of earliest signs of reaction, providing monoflament examination, physiotherapy, and footwear for patients with established nerve damage. Frequent dermatological training workshops will be essential to ensure that leprosy is not taken as a ‘forgotten disease’ and to sustain the knowledge and skills for early diagnosis and treatment of leprosy till disease is pushed to its last verge from the world.
RELAPSE AND DRUG RESISTANCE IN LEPROSY

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Introduction: Neither relapse nor drug resistance are currently regarded as major problems in leprosy, but it is important that we remain vigilant, so that any potential threat in this area can be dealt with quickly, before it becomes unmanageable. This paper describes the current surveillance network for drug resistance in leprosy, which was established by WHO after an informal consultation in Agra, India at the end of 2006. Annual meetings were arranged, and since 2012, these have been sponsored by the Folkeau Foundation of France and American Leprosy Missions. Definitions of relapse are described and current findings are outlined. At present, drug resistance is rare and relapse cases respond well to a second course of multi-drug therapy (MDT).

Methods: This paper is based on a review of the literature, including published reports of the drug resistance surveillance network meetings, and on personal communication with members of the network. The network uses molecular methods to look for known genetic markers of resistance to three drugs, namely, dapsone, rifampicin and ofloxacin. The network consists of approximately a dozen centers in endemic areas, which collect samples and approximately a dozen western laboratories which do the molecular testing. A small number of labs in endemic areas can also do the molecular tests.

Results: The number of samples being tested remains low – perhaps 100-200 per year – so we cannot yet truly say that drug resistance is not a problem. Sporadic cases of dapsone resistance are reported throughout the world, but this is not of clinical significance. Rifampicin resistance is reported more from Brazil than elsewhere, but they are probably doing more testing. It is of note that for some years during the introduction of MDT, clofazimine was not widely used in Brazil because of its side effects, which may have allowed some rifampicin resistance to develop. At this year’s meeting, reports of current year testing, from everywhere except Brazil, included 107 samples from five countries, with zero rifampicin resistance (sporadic cases of rifampicin resistance have been reported from a number of countries in previous years). The situation in Brazil will be described in more detail by others.

Ofloxacin resistance is reported, for example, in 5 out of 34 samples tested by the Stanley Browne Laboratory in Delhi, with samples from various TLM centers in India. This is worrying as the drug is not yet being used for leprosy, while being widely used for other infections. Clofazimine resistance is difficult to test, but does not seem to be a problem.

Conclusion: There is a need to increase the number of tests being done, so that we have a more complete picture of the situation. This should include a sample of new cases, as well as relapse cases, which are rather rare. Rifampicin resistance in Brazil requires closer monitoring. The assessment of new drug regimens that would be effective in resistant cases needs to be carried forward.

Methods: The BCG prophylaxis against leprosy trial was initiated in 1973, to assess the role of BCG vaccination in the prevention of progressive and serious forms of leprosy in South India. During this period, leprosy patients were treated with dapsone monotherapy only. We analyzed the trial data from four consecutive follow-up surveys conducted in 1975-77, 1978-80, 1980-82 and 1983-85 among a cohort of placebo arm and newly registered population of 243,766, 260,216, 278,918 and 287,057 respectively. The cohorts were clinically screened for leprosy by trained paramedical workers and were confirmed by medical officers. They were blinded to the earlier clinical status of the trial participants. The investigators subsequently classified the cases into old, new and relapsed cases for each of the follow-up surveys at the time of analysis. An individual was considered as a relapse case if he/she was detected as a case in one follow-up survey, declared leprosy-free in the next and captured as a case in the subsequent follow-up surveys. We estimated the age-specific prevalence and incidence rates of leprosy in the population for each follow-up survey. Age-specific relapse rate among known cases was calculated for the last three follow-up surveys.

Results: The prevalence of leprosy was 39.9, 44.1, 40.5 and 41.5 per 1000 during the four follow-up surveys. The incidence rates were 11.3 per 1000 per year during the first follow-up survey and 10.3, 8.7 and 9.2 per 1000 per year in the last three follow-up surveys. Both age-specific prevalence and incidence rates were similar across the follow-up survey periods. The relapse rates of leprosy among old cases were 106.1, 72.7 and 76.4 per 1000 per year during the last three follow-up surveys, respectively. These relapse rates were eight to ten times higher than the overall incidence in the population. During the first follow-up survey in 1978-80 relapse rates were lower in the population below 20 years of age. The age-specific relapse rates reduced from the first to the third follow-up survey.

Conclusion: During dapsone monotherapy era, the quantum of incidence and relapse rates declined over a decade in South India. In the present day context of low-endemic levels of leprosy and Multi-Drug Therapy (MDT) based treatment strategy, it may be useful to tease out relapsed cases from incidence cases for interpreting trends of new case detection rates.

TRENDS IN INCIDENCE AND RELAPSE RATES OF LEPROSY DURING DAPSONE MONOTHERAPY ERA IN SOUTH INDIA

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Introduction: In leprosy control programmes, new case detection rate, as a proxy for incidence, reflects the trends in leprosy transmission. There is some evidence to document repeat attacks of leprosy among the treated patients. There are no tools to distinguish between new cases and relapses in programme settings. We used data from BCG trial for prevention of leprosy conducted in an extremely high-endemic setting in South India (1973-1985) to examine the trends in relapse rates along with the incidence rates of leprosy.

Results: Of the listed 3576 RFT leprosy patients as per the records of the Government program in the endemic surveyed districts, 2185 (61%) were traceable and consented to participate. Of them, 55% were men, 7%, were below 15 years and 42%, were multi-bacillary (MB) type. There were 64 (2.9%) relapsed cases; 68.5% of them were males. The median period since RFT was 51 months (Range: 23-89 months). Of the relapses 75%, and 95%, occurred within 3 and 4 years after RFT respectively. Overall incidence of relapse per 1000 PY was 6.7 (95% CI: 5.2 - 8.5), higher among MB (8.8; 95% CI: 5.9 - 11.8) than that among Pauci Bacillary patients (5.5; 95% CI: 3.8 - 7.7) (p= 0.04). Incidence of relapse per 1000 PY was higher among men (8.4; 95% CI: 6.2 - 11.2) than in women (4.7; 95% CI: 2.9 - 7.1) (p=0.02). Increase in size or new lesions (64%) were commonly observed among the relapsed cases. Persistent active lesion and reactions were seen in 11% and 9% respectively. Thirty eight relapsed patients had nerve involvement and the

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number of nerves involved ranged from 1 to 10. Deformity was noted in 22 patients and 13 of them were Grade 2. Sixty of the 64 relapsed patients consented for smear collection and five of them were positive. Relapses were more among those who were prescribed steroid (9/62).

Multiple regression analysis indicated that gender was associated with relapse (Hazard ratio: 1.7; 95%; CI: 1.003-3.01) after adjusting for age, education and type of leprosy.

Conclusion: The relapse rate identified is much lower than reported elsewhere in the literature. In the absence of baseline characteristics for all RFTs, the probable impact of non-tradeable patients on relapse rates cannot be commented. Non-availability of the RFT cases at recorded addresses, sparse distribution of cases and difficulty in reaching certain geographic locations for data collection were challenging. We recommend emphasis by health systems to inform RFT patients to report to local health facilities for appropriate advice and intervention to minimize development of deformities among relapsed cases.

O-102

Presentation Time: Wednesday 18/09/2013 at 11:00 – 12:30
Symposium Session: Relapse and Drug Resistance
Presenter: Dr. Deanna Hagge

LEPROSY DRUG RESISTANCE MONITORING AND RELAPSE IN NEPAL

P. Thapa 1, M. Shah 2, K. Neupane 2, M. Khadgi 1, A. Neupane 2, W. Li 3, V. Vissa 3, I. Napat 3, D. A. Hagge 1, 3

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Introduction: Dapsone monotherapy was introduced in Nepal in 1957, while multidrug therapy (MDT) became standard practice during the 1980’s. Monitoring relapse rates and the development of resistance to leprosy drugs are essential tools to evaluate ongoing MDT-based control strategies. Located within a leprosy referral hospital, our lab has been monitoring primary and secondary leprosy drug resistance and leprosy relapse in Nepal since 1982.

Methods: Medical charts for 520 untreated and 125 previously treated leprosy patients who were tested for drug resistance by the standardized mouse foot pad (MFP) model were reviewed. Three concentrations of dapsone (high, 0.01%, medium, 0.001% and low, 0.0001%), and rifampicin (high, 0.1%, and low, 0.05%) were evaluated. Molecular drug resistance detection was performed on a subset of samples by real time PCR high resolution melt (HRM) analysis (n=216) followed by sequencing (n=103) for the mutations in the dapsone target gene, folP1. A smaller subset of samples (n=16) were screened for mutations in rifampicin target rpoB gene.

Results: Of 520 primary drug resistance tests performed, 95 (18.29%) patients demonstrated resistance strains with biological growth under dapsone or rifampicin. Since 1982, 74 (14.23%) patients were positive. Relapses were more among those who were prescribed steroid (9/62). High dose dapsone resistance was detected only within the last decade and confirmed by folP1 mutation analysis. Molecular data collected thus far, identified one patient carrying a folP1 threonine to alanine mutation in codon 53 (ACC > GGC), and two patients with heteroresistance (mixture of wild type and mutant sequences) in codon 456 (serine) in rpoB (TGG > TGG+TGG+TGG). High dose rifampicin resistance has not yet been detected however, low dose rifampicin resistance was detected, at least once alongside high dapsone resistance. Since 2000, 40 MDT defaulters, nine dapsone monotherapy relapsed and 37 MB-MDT (24 doses) relapsed cases have been tested. Relapse bacterial index (BI) averaged 4.8 (range 2-6). Interestingly, 8 (21.6%) of the MB-MDT relapse patients had also previously received dapsone monotherapy. All defaulters were drug sensitive, while only 1 each of the dapsone monotherapy and MB-MDT relapse cases demonstrated low dapsone resistance. Time to relapse averaged 10 years (range 2-27 years). Five of the nine (55%) dapsone monotherapy cases produced viable Mycobacterium leprae growth. Of the 37 MB-MDT cases, 29 (78%) demonstrated viable M. leprae growth, and 26 (70%) were noted as histologically active in skin biopsy. All cases demonstrating evidence of some level of drug resistance resolved with subsequent MDT treatment.

Conclusion: Low and medium dose dapsone resistance have been reported in Nepal since monitoring began in 1982; however, more recently, high dose dapsone resistance has been demonstrated by both MFP biological growth and molecular methods. High dose rifampicin resistance has not yet been detected. Most drug resistance detected was isolated from primary cases with only 2 relapse cases demonstrating low dose dapsone resistance. All relapse and drug resistant cases resolved clinically with MDT. With low reporting of relapse and high dose drug resistance, these monitoring results indicate that MDT remains significantly effective in treating leprosy in Nepal.

O-228

Presentation Time: Wednesday 18/09/2013 at 11:00 – 12:30
Symposium Session: Relapse and Drug Resistance
Presenter: Dr. Manmohan Ebenezer

PROFILE OF DEFAULTERS AND PATTERNS OF DEFAULTING IN A LEPROSY HOSPITAL IN SOUTH INDIA

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Introduction: The study was done to create a profile of people who default from the WHO multi drug therapy. It is known that the usual compliance rate is about 50%. Creating a profile of patients who default will help to identify the group of people who are at risk of defaulting. These patients can be accorded with more counseling to help in improving the compliance rate in a Leprosy program.

Methods: A retrospective cohort analysis was done of all the 272 patients who were started on MDT. Of this, 148 (54.4%) patients completed their treatment. The remaining 124 (45.6%) defaulted on their MDT treatment during the period from January 2010-December 2011. Of these patients who defaulted, 110 (88.7%) were taking MB treatment and 14 (11.3%) were taking PB treatment. Variables such as Age, Sex, type of treatment, Disability grade, Number of months of treatment completed before defaulting and whether they were living in an urban area or a rural area were taken into consideration for further analysis.

Results: In those patients treated with the MB MDT and defaulted, there were 83 (75.4%) males and 27 (24.5%) females. The number of patients with Gr I or Gr II disability was 65 in those treated with MB MDT. Of this, 48 (73.8%) defaulted before their treatment was completed. Only 17 (26.15%) defaulted after completion of more than half their treatment. There was a significant relationship between the number of people who had disabilities and early defaulting.

In the patients treated with PB MDT, 11 (78.6%) patients defaulted after the first dose itself and only 2 patients completed at least 3 months treatment (14.3%). In those treated with MB MDT, 33 patients (50%) defaulted after the first dose itself, 46 patients (61.8%) defaulted within 6 months and only 31 (28.2%) of the patients defaulted after completing more than 6 months of treatment.

In the defaulter of MB MDT treatment, 49 were from urban areas and, of this, 47 (95.92%) defaulted before half the treatment was completed, whereas only 2 (4.08%) defaulted after 6 months of treatment. The remaining 61 were from rural areas and in this group, 28 (45.9%) defaulted within 6 months and 33 (55.1%) defaulted after half the treatment was completed.

The distribution of the defaulters suggests that a significant number of the urban population is likely to default earlier.

Conclusion: The defaulting patterns suggest that contrary to the usual norm, a significant number of patients in the PB group defaulted within one month of being started on MDT. Also, this study corroborates the idea that many urban dwelling people default within a short time of being started on anti leprosy treatment. So, these groups need to be given priority and intensive health education needs to be provided to them to improve compliance to MDT.

O-103

Presentation Time: Wednesday 18/09/2013 at 11:00 – 12:30
Symposium Session: Social Sciences
Presenter: Alice Cruz

HANSEN DISEASE AS A BIOSOCIAL ISSUE: THE ROLE OF THE SOCIAL SCIENCES IN THE STRUGGLE TOWARDS HEALING AND INCLUSION

A. Cruz 1,2

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Introduction: In order to examine what might be the role of social sciences, as well as of lay knowledge in the production of more equitable health public policies, this paper will critically examine the biomedical twist in the dialectic between citizenship and public good that aimed to turn Hansen disease into a disease like any other during the 1980’s decade. In fact, the advent of poliquimotherapy (MDT) alongside the platform between international agencies and advocacy groups in the 1990’s that supported the global program for the elimination of Hansen disease as a public health problem, instigated a synthesis between a biomedical technology (MDT), the cure of Hansen disease and social inclusion that not only reinforced the biomedical jurisdiction as a public health problem, instigated a synthesis between a biomedical technology (MDT), the cure of Hansen disease and social inclusion that not only reinforced the biomedical jurisdiction over Hansen disease, but also the medicalization of the stigma and discrimination related with it.

Methods: This critical analysis is based upon a multi-sited ethnography developed between 2008 and 2012 in two divergent contexts that represent the polar expression of Hansen disease in the global South and North: Brazil, which remains the first country in the world with the highest relative cases of Hansen disease, and Portugal, in which Hansen disease has become a rare and imported disease. This research made use of an interdisciplinary methodology shaped by qualitative techniques such as participant-observation, documentary research and semi open
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**O-104**

**Presentation Time:** Wednesday 18/09/2013 at 11:00 – 12:30  
**Symposium Session:** Social Sciences  
**Presenter:** Beatriz Miranda

**LOVE IN THE TIME OF LEPROSY: DEALING WITH PARTNERSHIP AND LEPROSY**

B. Miranda 1,2 and Prof. Irawanto, PhD  
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**Introduction:** In 1985 the Colombian writer Gabriel García Márquez published his book ‘Love in the time of cholera’. The comparison established by Márquez between lovelessness and illness is used in this paper as a metaphor to approach the life of partners who have to deal with leprosy. From information collected, from couples where one or two of the members have to deal with leprosy in Cirebon, West Java Indonesia, issues of gender role, emotional attachment, moral judgment and couple interaction will be brought to debate. The aim of this paper is to unveil the complexity existing in the life of partners affected by leprosy when they decide to share their life with a partner or are looking forward to doing it. Social, moral and physical suffering are concepts that will guide the construction of the argument but also examples of resistance and compliance will be discussed.

**Methods:** In order to do so, the narratives of eight couples and three single people will be described and analysed. The interviews were developed together with one of the research assistants who have visited the families two more times after the first visit in order to collect more in-depth information. This work constitutes part of the ongoing research implemented by the SARI Project in Indonesia. The interviews were semi-structured and the preliminary results will be discussed with the participants to validate the information obtained.

**Results:** While love is a construction that seems to lead to partnership and/marriage, it can result in a very complex category especially when there is a disease mediating it such as leprosy. Couples and especially women have talked in this study about arranged marriages, the fear of not accomplishing social demands, the importance of financial support and the gender roles that become even more evident through leprosy. Suffering, resistance and compliance appear as main concepts within the narratives of the participants which also challenge the medicalised view that has prevailed in the study of leprosy.

**Conclusion:** The life of people affected by leprosy goes beyond the disease and its treatment. Issues about relationships and families need more attention for future research and interventions. Women and men affected by leprosy face difficulties when building a relationship due to the complex and always changing understanding of love, partnership and leprosy.

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**O-105**

**Presentation Time:** Wednesday 18/09/2013 at 11:00 – 12:30  
**Symposium Session:** Social Sciences  
**Presenter:** Yukiko Araragi

**LIVING WITH AMBIVALENCE: THE EXPERIENCES OF JAPANESE HANSEN’S DISEASE SURVIVORS AND THEIR FAMILIES IN THE ERA OF RECONCILIATION**

Y. Araragi 1,2  
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**Introduction:** This paper examines the problematic experiences of survivors of Hansen’s Disease and their families in the era of reconciliation through focusing on the narratives of both of them. In Japan, Hansen’s Disease patients suffered for decades as they were subject to the government’s long segregation policy. The reconciliation process finally began when the policy was abolished in 1996. In 2001, the court decreed that the segregation policy was wrong—they found that the government was the ‘perpetrator’ and they ordered compensation to survivors for their suffering. Thus a legal, institutional reconciliation process had began between survivors (including their families) and the government. Compared with the progress of the institutional reconciliation, the reconciliation between survivors and their families, which also includes the relationship of ‘victim and perpetrator’, has been delayed. I examine the ambivalent feelings embedded in survivors’ experience, paying special attention to the complications and difficulties involved in the relationship between survivors and their families.

**Methods:** The qualitative descriptive method of sociology is adopted in this study. I have been conducting life story interviewing of many survivors since the mid-1990s; my work thus covers the period of lawsuit. I analyze their experiences, through data collected in my interviews, published narratives, interview data from families, and additional published narratives by families.

**Results:** When the abolition of the segregation policy in 1996, survivors released in their feelings from confinement. Despite the change in their feelings, few of them were able to restore their family ties. In 1998, some survivors sued the government for compensatory damages caused by the segregation policy. Japanese survivors of Hansen’s Disease have been protesting government policies for decades. However, many had negative attitudes towards the lawsuit in the beginning because they could not recognize themselves as victims. It was only after learning to construct the concept of ‘victims’ in the lawsuit that they embraced the legal and conciliation process. As a result, the court ruled in favor of the plaintiffs and the legal and institutional reconciliation process began, with compensations paid out, among other terms of the settlement. On the other hand, the reconciliation process between survivors and their family has not been fully developed, because survivors have damaged relationships with their families because of the stigma of their illness. At the same time survivors believe their relationships have been damaged through their families’ rejection. Again, for the families, they have ambivalent feelings of being both victims and perpetrators. They recognize survivors as intimate family members, but also recognize them as persons who bring serious damage to them, because families are afraid of the stigma associated with Hansen’s Disease.

**Conclusion:** The experiences of survivors and their family are still problematic in Japan. It is mistaken to believe that the problem of Hansen’s Disease has been solved even though the legal and institutional reconciliation processes have developed. In particular the experiences of families demonstrate that there is still severe stigma because they continue to live in a general society where the stigma associated with Hansen’s Disease still remains. That demands us to seek a way to make progress in the reconciliation with the sufferers, which includes the relationship between patients, families and the rest of society.

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**O-106**

**Presentation Time:** Wednesday 18/09/2013 at 11:00 – 12:30  
**Symposium Session:** Social Sciences  
**Presenter:** Sabiena Feenstra

**RECENT FOOD SHORTAGE IS ASSOCIATED WITH LEPROSY DISEASE IN BANGLADESH: A CASE-CONTROL STUDY**

S. G. Feenstra 1,2, Q. Nahar 2, D. Pahan 3, L. Oskam 4, J. H. Richardus 2  
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**Introduction:** Leprosy is remaining prevalent in the poorest areas of the world. Intensive control programmes with multidrug therapy (MDT) reduced the number of registered cases in these areas, but transmission of Mycobacterium leprae continues in most endemic countries. Socio-economic circumstances are considered to be a major determinant, but uncertainty exists regarding the association between leprosy and poverty. We assessed the association between different socio-economic factors and the risk of acquiring clinical signs of leprosy.

**Methods:** We performed a case-control study in two leprosy endemic districts in northwest Bangladesh. Using interviews with structured questionnaires we compared the socio-economic circumstances of recently diagnosed leprosy patients with a control population from a random
cluster sample in the same area. Logistic regression was used to compare cases and controls for their wealth score as calculated with an asset index and other socio-economic factors. The study included 90 patients and 199 controls.

Results: A recent period of food shortage and not poverty per se was identified as the only socio-economic factor significantly associated with clinical manifestation of leprosy disease (OR 1.79 (1.06-3.02); p=0.030). A decreasing trend in leprosy prevalence with an increasing socio-economic status as measured with an asset index is apparent, but not statistically significant (test for a trend: OR 0.85 (0.71-1.00); p=0.083).

Conclusion: Recent food shortage is an important poverty related predictor for the clinical manifestation of leprosy disease. Food shortage is seasonal and poverty related in northwest Bangladesh. Targeted nutritional support for high risk groups should be included in leprosy control programmes in endemic areas to reduce risk of disease.

O-107
Presentation Time: Wednesday 18/09/2013 at 11:00 – 12:30
Symposium Session: Social Sciences
Presenter: Irine Jini

UNDERNUTRITION AMONG CURED LEPROSY PATIENTS

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Introduction: Persons suffering from stigmatized diseases such as Leprosy, become, socioeconomically disadvantaged, making them undernourished and malnourished, which forms the basis of many other adverse physical consequences, which needs to be detected and addressed in both curative and preventive programs. In this past-MDT era where integrated leprosy services are freely available, it is essential that we assess the problems of undernutrition among cured leprosy patients and seek suitable solutions.

Methods: A random sample of Multibacillary Leprosy patients, who completed the stipulated course of MDT at a Referral Hospital in Delhi, India, were compared with a matched control of non-leprosy patients in terms of their Body Mass Index(BMI), considered a valid indicator of nutritional status. Heights and Weights were measured using standardized equipment and BMI calculated using the formula, Weight (kg) divided by Height (m)². Those BMI was less than 18.5 were considered undernourished.

Results: Samples of 90 leprosy patients released from treatment were compared to 100 non-leprosy patients from the same hospital. Using the cut-off point of BMI $<18.5$, 32% of RFT patients are undernourished as compared to only 9% without leprosy, the difference statistically highly significant (p<0.01). This differential was also evident in broad age-groups and gender. RFT patients with grade 2 disability had significantly higher under nutrition (BMI$<18.5$ was 35.4 as compared to 0% among those without grade 2 disability; p=0.01). The mean (SE) of BMI among those with and without grade 2 disability was 20.4(0.4) and 23.0(1.0), the difference statistically significant (p<0.05).

Conclusion: Under nutrition is widely prevalent among cured leprosy patients, especially those with grade 2 disabilities, and require proper medical and public health care to prevent further complications.

O-108
Presentation Time: Wednesday 18/09/2013 at 11:00 – 12:30
Symposium Session: New Diagnostic Tools
Presenter: Prof Annemieke Geluk

NEW TESTS DETECTING CELLULAR- AND HUMORAL IMMUNITY AGAINST M. LEPRAE

A. Geluk 1,2 and the IDEAL consortium

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Introduction: The need for diagnostic tests for leprosy that can be applied in non-expert settings may now be greater than ever before, due to changes in leprosy control programs and the decrease in special expertise required for (early) diagnosis of leprosy. However, there is no test available that can detect asymptomatic Mycobacterium leprae infection or predict progression of infection to clinical disease. Identification of risk factors (immunological- or genetic biomarkers) for disease development and/or onset of leprosy reactions is imperative for efficient diagnostic. Tests simultaneously detecting biomarkers specific for cellular- and humoral immunity are well-suited for diagnosis of the different clinical outcomes of leprosy.

Methods: Utilizing up-converting phosphor (UCP) reporter technology, a lateral flow assay was designed to detect human Th1 and Th2 cytokines as well antibodies. The assay was evaluated with (M. leprae antigen stimulated) blood samples of leprosy patients and controls.

Results: The UCP-LF assay allowed detection of IFN-γ, IL-10 and anti-PGL-I antibodies in serum. Qualitative evaluation of 200 blood samples demonstrated excellent correlation with ELISA (R² = 0.92). Cytokine multiplexing and simultaneous detection of cytokine and antibody was successfully demonstrated.

Conclusion: The UCP-LF assay is a user-friendly, rapid alternative for ELISAs. This format is suitable for multiplex detection of different cytokines and can be merged with antibody-detection assays allowing simultaneous detection of cellular- and humoral immunity. Thus, the UCP-LF test can cover detection of biomarkers for the full immunological leprosy spectrum.

O-109
Presentation Time: Wednesday 18/09/2013 at 11:00 – 12:30
Symposium Session: New Diagnostic Tools
Presenter: John Spencer

IDENTIFICATION OF SEROLOGICAL BIOMARKERS OF INFECTION, DISEASE PROGRESSION AND TREATMENT EFFICACY FOR LEPROSY

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Introduction: We have examined the reactivity of lepromatous and tuberculoid leprosy patient sera against a panel of 12 recombinant M. leprae proteins, and found that six were strongly recognized by MB patients, while only three were consistently recognized by PB patients. Additionally, antibody responses against a subset of antigens which provided a good prognostic indicator of disease progression were analyzed in 51 household contacts of MB index cases for up to two years.

Methods: To gain a better understanding of the dynamics of patient antibody responses during and after drug therapy, we measured antibody titers to four recombinant proteins, PGL-I and LAM at baseline and up to two years after diagnosis for temporal changes in antibody titers. Responses of the 51 household contacts were examined by immunoblot and ELISA for up to two years following enrolment.

Results: Both the reactivity patterns to individual antigens and the decrease in antibody titer were patient specific and declined more rapidly in the case of antibody titer to proteins versus carbohydrate and glycolipid antigens. Antibody responses in one individual showed increases in titers during reactional episodes. Although the majority of these contacts showed no change or an actual decrease in antibody titer, seven individuals developed higher titers towards one or more of these antigens. Of these seven individuals, one was diagnosed with BL disease 19 months after enrolment, while a second person was diagnosed with the indeterminate form 28 months after enrolment.

Conclusion: The results of this study indicate that antibody titers to specific M. leprae antigens can be used to monitor treatment efficacy in leprosy patients and to assess disease progression in those most at risk for developing this disease.

O-110
Presentation Time: Wednesday 18/09/2013 at 11:00 – 12:30
Symposium Session: New Diagnostic Tools
Presenter: Mariane Stefani

ANTIGEN ASSOCIATIONS FOR THE DIAGNOSIS OF PAUCIBACILLARY LEPROSY

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Introduction: The development of any laboratory test for leprosy diagnosis needs to take into account the Th1/Th2 dichotomy that leads to cell mediated immunity (CMI) in paucibacillary (PB) patients and humoral immune response in multibacillary (MB) disease. While serological tests to evaluate humoral immune responses among MB leprosy have been described, no laboratory test to detect PB leprosy patients exists. This study assessed the potential application of different Mycobacterium leprae (M. leprae) antigen combinations to stimulate CMI among PB leprosy patients.

Methods: Study groups included: 1. Newly diagnosed untreated PB and MB leprosy patients (n=20/group), 2.Pulmonary tuberculosis patients (TB n=20), 3.Healthy endemic controls (EC n=20). 4.MB household contacts (HHC n=20). Patients and controls were recruited at “Centro de Referência em Diagnóstico e Terapêutica Guiana/Goiás” in central-western Brazil. The ML0255, ML461, LID-1, ML2076, ML1632 and ML2044 M. leprae recombinant proteins (MlR) were tested individually and in five different M. leprae antigen combinations (MLR Mixes: Mix #1: 461 + LID-1, 461 + LID-2 + LID-3, 461 + LID-4 + LID-5, 2044 + LID-1 + LID-5, 1632 + LID-1 + LID-5, 2076 + LID-1 + LID-5, 0255 + LID-1 + LID-5)


Results: The stimulation in WBA with four out of five M. leprae antigen combinations resulted in higher levels of IFN-γ when compared to individual proteins. Mix # 1 (46f + LID-1) almost doubled IFN-γ production (median=102 pg/mL) compared to individual proteins (LID-1, median=53 pg/mL and 46f, median=61 pg/mL, p=0.05). Mix # 5 (M2, M276 + LID-1) was also capable to induce higher levels of IFN-γ production (median=101.5 pg/mL, p=0.0005) than the individuals proteins. IFN-γ production was also high among HHC after stimulation with Mix # 1 and Mix # 5, similarly to what was observed among PB leprosy. None of the proteins nor M. leprae antigen combinations induce IFN-γ production among EC or TB patients indicating that the enhancement in IFN-γ production by different antigen combinations did not compromise the specificity of the cellular response.

Conclusion: Different combinations of M. leprae proteins had a synergistic effect enhancing the IFN-γ production among PB leprosy patients and HHC group without losing specificity. These results indicate that antigen combinations can be potentially applied in the development of new laboratory tests to diagnose PB leprosy and in vaccine design.

Financial Support: Hesper Foundation for TB and Leprosy/NY/USA; American Leprosy Missions/USA.

O-111

Presentation Time: Wednesday 18/09/2013 at 11:00 – 12:30
Symposium Session: New Diagnostic Tools
Presenter: Malcolm Duthie

A RAPID ELISA FOR LABORATORY-BASED DIAGNOSIS AND CHARACTERIZATION OF LEPROSY

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Introduction: Despite the recent reduction in the number of registered worldwide leprosy cases as a result of the widespread use of multi-drug therapy, the number of new cases detected each year remains relatively stable. The World Health Organisation recommends that leprosy diagnosis and treatment be provided as soon as possible, but currently the diagnosis is based on the appearance of clinical signs. This requires expert clinical care, as well as labor intensive and time consuming, laboratory or histological evaluation.

Methods: Our previous studies indicated that the combination of serological antibody responses against PGL-I (or NDO-BSA) and the LID-1 fusion construct could be complementary. We designed a conjugate of NDO-LID, which was achieved by reaction of LID-1 lysine residues with synthetic NDO following activation of the NDO hydrazide to the reactive acyl azide. We then evaluated seroreactivity of the conjugated NDO-LID form in Leprosy Detect™ fast ELISA. This test format was developed by InBios International (Seattle, WA, USA) and is capable of providing expedited laboratory-based diagnosis of leprosy. Samples and assay controls are added to ready-to-use pre-coated/ pre-blocked wells and results are obtained in less than 90 minutes. Given the well strip format of the test, as few as 4 and as many as 90 samples can be evaluated in a single plate.

Results: Direct comparison of tests conducted using typical ELISA conditions (i.e., uncoated plates and elongated incubation periods) versus the rapid ELISA format indicated that an enhanced signal was obtained for sera from confirmed leprosy cases without any change in the signal obtained from negative control sera. As expected, multibacillary leprosy patients recognized NDO-LID with stronger antibody responses than paucibacillary patients. It was apparent that the conjugated NDO-LID provided an augmented signal in ELISA of samples that were borderline positive for each antigen alone, and complemented the recognition of samples that were positive for only one of the antigens.

Conclusion: The Leprosy Detect™ fast ELISA represents a valuable tool for both diagnosis and monitoring of leprosy patients.
Conclusion: Histopathological findings of cutaneous nerve branches involvement in combination with quantitative sensory testing are useful tools to aid the clinician at the diagnostic decision.

O-114
Presentation Time: Wednesday 18/09/2013 at 11:00 – 12:30
Symposium Session: Molecular Epidemiology
Presenter: Dr Patricia Rosa

EVIDENCE OF ACTIVE TRANSMISSION OF DRUG RESISTANT Mycobacterium LEPRAE STRAIN IN BRAZIL

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Introduction: Over the past decade, leprosy detection rates have been decreasing slowly in Brazil. Several factors are involved in the maintenance of leprosy transmission, such as operational limitations, drug regimen failure and drug resistance, among others. To investigate the impact of drug resistance over disease relapse and transmission, we genotyped Mycobacterium leprae isolates obtained from leprosy affected individuals resident at the former leprosy colony of Santo Antonio do Prata (Prata colony). This Colony, founded in the 1920’s and located in the Amazonian state of Pará, north of Brazil, has been recently reported one of the highest leprosy prevalence in the world. A major gene effect controlling susceptibility to the disease was identified in the colony, suggesting an enrichment of genetic risk factors for leprosy within this population. Therefore, the Prata Colony presents unique characteristics that make it ideal for the study related to transmission and maintenance of the endemic.

Methods: Multibacillary (MB) cases who have had completed at least one multi-drug therapy regimen and their contacts living in the Prata colony were invited to participate in the study. After signing an informed consent, volunteers were submitted to complete dermatological and neurological evaluation. Individuals presenting active leprosy (both relapse and new cases) were classified according to the Ridley & Jopling protocol and submitted to a skin biopsy for folP1 genotyping. Drug resistance was investigated by direct sequencing of polymorphic sites of the rpoB, folP1 and gvdA genes. M. leprae strain typing was performed by Multiple-locus VNTR Analysis (MLUAr).

Results: A total of 207 participants were enrolled: 104 individuals that had completed treatment and 103 contacts. Twelve pre-treated individuals (11 MB and 1 PB) and 10 contacts (2 MB and 8 PB) were diagnosed with active disease. Among the 12 relapse cases, 6 presented rifampicin and dapsone double resistance, and 3 dapsone resistance. Interestingly, among the M. leprae isolated from the 10 new cases, two were double resistant, one was rifampicin and another, dapsone resistant. None of the samples presented mutations in the gvdA gene. All polyB mutations were in codon 535, TCG to ATG (Ser to Met), while different folP1 mutations occurred at codon 55: 10 cases presented CCC to CGC (Pro to Arg), one CCC to GCC (Pro to Ala), and one CCC to CTC (Pro to Leu). Upon MLVA typing, clustering level in this particular population was CCC to CTC (Pro to Leu). Upon MLVA typing, clustering level in this particular population was CCC to CTC (Pro to Leu). Upon MLVA typing, clustering level in this particular population was CCC to CTC (Pro to Leu).

Conclusion: The observation of active transmission of resistant M. leprae in an isolated population poses a specific challenge for leprosy control programs. Results from the present study suggest that the emergence of drug-resistant M. leprae strains is occurring in the study area, and persisted for at least 4 years within the population. Further studies are needed to confirm these observations and to assess the impact of drug resistance on leprosy transmission in the Amazonian region.
Results: Several scenarios of clustering of leprosy from township to provincial to regional levels were recognized, while recent occupational or remote migration showed geographical separation of certain strains. First, prior studies indicated that of the four major M. leprae subtypes defined by single nucleotide polymorphisms (SNPs), only type 3 was present in China, purportedly entering from Europe/West/Central Asia via the Silk Road. However, this study revealed VNTR linked strains that are of type 1 in Guangdong, Fujian and Guangxi in southern China. Second, a subset of VNTR distinguishable strains of type 3 co-exists in these provinces. Although the majority of the Guangdong strains are of SNP type 1 or a variant of SNP type 3 seen in neighboring Jiangxi and Guangxi, 6/22 strains diverged. Four were migrants from other provinces with three being non-Han; majority of Guangdong patients are Han. Third, type 3 strains with 1p0 VNTR allelic of 4, detected in Japan and Korea were discovered in Jiangxi and Anhui in the east and in western Sichuan bordering Tibet. In Sichuan, this type was found amongst the Zang/Tibetan nationality patients. Fourth, considering the overall genetic diversity, strains of endemic counties of Hui, Yunnan; Xing Yi, Guizhou; and across Sichuan in southwest were related. However, closer inspection showed distinct local strains and clusters. The strain type responsible for the dominate cluster (previously identified as groups A and B), and includes a number of Zhuang ethnicity multi-case families in Hui,Yunnan (TY-QB) is not seen in Guizhou or Sichuan. This indicates restricted spread of the strain outside of YN-QB. In Xing Yi city, Guizhou, several strain type clusters were detected. One composed of at least seven cases with an etiological allele of 7 for (AC) 8b has four patients from the township of BaJieZhen. Of five Buyei minority patients in the entire cohort and three belong to this cluster and township.

Conclusion: Altogether, these insights, primarily derived from VNTR typing reveal multiple and overlooked paths for spread of leprosy into, within and out of China and invite attention to maintaining surveillance and healthcare capacity along these pathways. Future studies should focus on evaluating intervention strategies that have been proposed for different cluster types identified in this study. Furthermore, comparison of different VNTR typing profiles with the data from the molecular epidemiology studies can shed more light on the extent of the spread of leprosy into other regions of China, and the potential to introduce similar clusters in other countries. The findings of this study emphasize the importance of ongoing surveillance and control efforts to prevent the spread of leprosy, particularly in regions with high prevalence and genetic diversity. The integration of multiple data sources, including VNTR typing, molecular epidemiology studies, and clinical data, can provide a comprehensive understanding of the factors driving the spread of the disease and guide the development of targeted interventions to prevent further transmission.
of hand surgery for claw deformity and loss of thumb opposition performed in 2011-2012 with postoperative immediate early active motion beginning on day 2 were reviewed to determine the outcome of each patient satisfaction assessment at the time of discharge. Eighty eight cases of identical hand surgery for claw deformity and loss of thumb opposition performed in 2008 to 2010 with conventional immobilization of the hand for 3 weeks were similarly reviewed for comparison. Lasso with Flexor Digitorum Superficialis tendon transfer for claw hand deformity and Opponensplasty with Flexor Digitorum Superficialis tendon transfer for loss of thumb opposition were the most commonly performed reconstructive surgical procedures. The results in both groups were analyzed by reviewing the patient charts, postoperative surgical assessment forms and the patient satisfaction assessment forms. Patient satisfaction assessments were performed using a scale from 0, indicating worst, to 10, indicating best, as compared to a normal hand. Patient satisfaction scores were subdivided into poor (1-3), good (4-6) and excellent (7-9).

Results: The group of 88 cases of reconstructive hand surgery with immediate active motion averaged a patient satisfaction score of 7.63, whereas the group of 92 cases of reconstructive hand surgery with conventional immobilization averaged only 6.35. Conventional methods yielded patient satisfaction scores rating outcome satisfaction 2.2% poor (2 cases), 30.4% good (28 cases) and 67.4% excellent (62 cases). In contrast, immediate early mobilization resulted in no poor satisfaction outcomes, 13.6% good (12 cases) and 86.4% excellent (76 cases). Functional and cosmetic appearance, range of motion, swelling, pain, dexterity, hand strength and morbidity was better in the group with the immediate early active motion of hand. The average hospital stay was reduced by 8 days in this group.

Conclusion: We found that patient satisfaction scores were higher in the group of patients with immediate early active motion of post reconstructive hand surgery due to leprosy. It yielded better results in functional and cosmetic appearance, early relief of pain, quicker restoration of hand function and early discharge from hospital reducing hospital expenses.

A STUDY OF PATIENTS EXPECTATIONS BEFORE AND AFTER RECONSTRUCTIVE SURGERY

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Introduction: The disabilities caused by leprosy are the main cause of the fear and stigma associated with leprosy and reconstructive Surgery is an effective tool to correct deformities caused by nerve damage in leprosy. Several patients from different states of Maharashtra & Karnataka take the benefits of this reconstructive surgery to get rid of their deformity, for patients benefit, we offer four reconstructive surgery camps in a year for functional improvement and bringing restoration to normality. Study determines the factors affecting the quality of life before surgery and to assess the effect and expectations of reconstructive surgery after the deformity correction, for a leprosy patient, appearance and functional improvement is very important since deformity not only separates him from his family, friends and relatives but it causes a stigma against in the community.

Methods: All patients with deformity due to leprosy attending Richardson leprosy hospital Miraj, in 2011, were screened for RCS. All who were selected for RCS and were willing, and consented to participate were interviewed using the SALSA Scale and Participation Scale. After surgery all were called for follow up after 3 months and then again after 1 year, and the interviews were repeated. The interviews were taken by trained physio therapists. Outcome changes in SALSA Scale and Participation Scale score were analysed.

Results: 152 patients underwent surgery and took part in the study. Participants who had surgery revealed changes in functional activities after 3 months of follow up; same were assessed after 1 year follow up showed a significant improvement than before, improvement ranged from score from 53 to 22 before and after surgery for hands, whereas for improvement ranged score from 58 to 28 before and after surgery for feet, and improvement ranged score from 47 to 18 before and after eye surgery.

Conclusion: Our finding suggests that Reconstructive surgery has played significant role in correcting deformities in leprosy by giving effective functioning resulting into physical & functional improvement and made them active in the household as well as in the community. There is a change in the quality of life after surgery; patients are satisfied by their appearance and in improvement in functioning. Quality of life makes them to live and to be a part of community.
Mycobacterium ulcerans strains prevalent in the patient's environment, we compared the genomes of the 2 BU-episodes we find maximum 1 SNP difference between the 2 BU patients from the same geographical area and time period, which differed by 11 to 54 SNPs. Preliminary results on 6 genomes from paired isolates of 2 patients that have been sequenced using Illumina HiSeq 2000 sequencer with 500x coverage. A Python utility called Nesoni was used to perform de novo assembly and assemble paired reads into contigs, from which a phylogenetic tree was constructed using SplitsTree4. In order to exclude reinfections with similar M. ulcerans strains prevalent in the patient’s environment, we compared the number of SNP differences between the paired isolates and a set of isolates from the same geographical area and time period. Results: Preliminary results on 6 genomes from paired isolates of 2 patients that have been analyzed to date suggest that second episodes are due to relapse rather than reinfection. When comparing the genomes of the 2 BU-episodes we find maximum 1 SNP difference between the genomes of paired isolates. This is much less than the number of SNP differences with isolates of BU patients from the same geographical area and time period, which differed by 11 to 54 SNPs. Conclusion: NGS of paired M. ulcerans strains collected from patients with multiple episodes of BU has sufficient resolution to distinguish relapse from reinfection. Preliminary results on a small number of patients suggest that second episodes are due to relapse rather than reinfection, which is important for the design and interpretation of immunological studies on BU.
with the medical doctors was to identify the main clinical indications and criteria that guided the prescription of the drug.

Results: Thalidomide was distributed to 508 individuals; 152 (29.9%) were females, 55 (36%) of them in the fertile age group. Of 94 users selected for an interview, 58 (61.7%) did not complete their primary education, 89 (94.7%) had a family income of up to 4 times the minimum salary, 64 (68.1%) reported to have been informed of adverse effects of thalidomide by the prescribing doctor, prior to their use, and 29 (30.9%) reported not having been informed to leave the medication out of reach of others.

Conclusion: The results confirm the need for educational measures directed toward the physicians, patients and the general population, including strict monitoring of the use of thalidomide in order to ensure safety and effectiveness. Thalidomide is today a therapeutic option for severe clinical conditions, despite the serious consequences that can result from its misuse.

0-129

Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Chemotherapy 2
Presenter: Digile Akembo

GLUCOCORTICOSTEROID INDUCED OSTEOPOROSIS (GIO) CAUSING VERTEBRAL COLLAPSE IN LEPROSY PATIENT TAKING PREDNISOLONE FOR ERYTHEMA NODOSUM LEPROSUM (ENL): A CASE REPORT

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Introduction: Patients with ENL often require treatment with high doses of corticosteroids for prolonged periods, especially in settings where thalidomide is not available. Osteoporosis is one of the most frequent severe adverse effects of steroid treatment. Bone loss starts early during corticosteroid treatment with the greatest rate of bone loss occurring in the first 6 months.

Methods: A 22 year old woman with BL complicated by ENL had completed MB MDT five months previously. She had been taking prednisolone and clofazimine for 10 months. The current dose was 35 mg and the cumulative dose of prednisolone was 870 mg. She presented with severe and constant pain over the lumbar spine for two weeks. There was no history of trauma. The pain was so severe that she was not able to walk. There were no urinary or bowel symptoms. She had no symptoms suggestive of TB. She had normal menses. On examination she was in severe pain. There was marked tenderness over the lumbar spines. There were no neurological signs. Her ENL was quiescent.

Results: The clinical differential diagnosis included osteoporotic fracture of the vertebra and spinal tuberculosis. Anti-tuberculosis therapy (ATT), analgesia, vitamin D3 and calcium supplementation were commenced. Her ENL recurred as a consequence of enzyme induction by rifampicin and necessitated an increase in her prednisolone. Cyclosporine was initiated as a steroid sparing agent. A chest and thoraco-lumbar spine x-ray was performed. The chest x-ray was normal but the spinal imaging and MRI showed osteoporosis with partial collapse of the vertebral spines involving T12 to L4 and there were no features suggestive of spinal TB. The ATT was stopped.

Conclusion: The frequency of osteoporosis secondary to corticosteroids for ENL is not known but the occurrence after only 10 months is cause for concern because many ENL patients require treatment for many years. In many leprosy endemic countries, such as Ethiopia, thalidomide and other steroid sparing agents are not available. Differentiating between osteoporotic spinal fractures and TB is often difficult and it is prudent to have a low threshold for initiating ATT. However ATT may lead to an increased steroid requirement which may worsen osteoporosis. The MRI findings in this case were so suggestive of osteoporosis that we felt continuing ATT was not justified. Access to MRI facility is limited in many leprosy endemic settings. We propose that all patients should receive prophylaxis for osteoporosis when starting corticosteroids which are expected to be required for prolonged periods. This includes all patients with leprosy reaction who are treated with corticosteroids.

The type of prophylaxis: calcium, vitamin D supplementation and bisphosphonate. Zoledronic acid and teriparatide are now recommended along with alendronate and risedronate for the treatment of GIO/P, depends up on the availability of these treatments and funding. National leprosy programmes, leprosy NGOs, leprosy patient groups and all those involved in the management of patients with leprosy should advocate the free availability of the treatment of leprosy reactions and any evidence-based prophylaxis for adverse effects of anti-reactional treatment.

0-130

Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Chemotherapy 2
Presenter: Hong Liu

ESTABLISHMENT AND APPLICATION OF RISK PREDICTION TEST FOR DAPSONE HYPERSENSITIVITY SYNDROME—PRELIMINARY REPORT

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Introduction: Dapsone (DDS), as an antibiotic and anti-inflammatory agent, has been widely used in the treatment of pathogen-causing infections and chronic inflammatory diseases. About 0.5-3.6% of individuals treated with DDS develop severe dapsone hypersensitivity syndrome (DHS) whose mortality rate is up to 11.3%. Currently, no tests are available to predict the risk of DHS.

Methods: We performed a genome-wide association study (GWAS) in DHS subjects and controls through the trend test of single nucleotide polymorphisms (SNPs) and imputed human leukocyte antigen (HLA) molecules. Validation was performed in additional series of DHS cases and controls through Roche 454 sequencing. Subsequently, for a retrospective analysis, the identified risk predictor was analyzed on 17 newly diagnosed leprosy cases (two suffered DHS after treatment by DDS) from Shandong province in 2012 using PCR-SSP and Taqman.

Results: One locus within MHC region was confirmed to be a strong risk factor for DHS and responsible for the association of DHS, whose presence had a high sensitivity and specificity as a predictor for DHS. In the retrospective analysis, two DHS cases both carried the risk allele of the HLA locus and it was absent in the remaining 15 non-DHS leprosy cases, which showed a fully consistency between the genetic test and clinical phenotype.

Conclusion: MHC locus is a strong risk factor for DHS in the Chinese population, shedding light on the pathogenesis of DHS. More importantly, our findings will facilitate the development of genetic tests to identify individuals at risk for this potentially life-threatening condition and help to obtain the full benefits of DDS therapy more safely and effectively.

0-131

Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Chemotherapy 2
Presenter: Wewei Tian

HLA-B*1301 ASSOCIATION WITH DAPSONE HYPERSENSITIVITY SYNDROME AMONG LEPROSY PATIENTS IN CHINA

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Introduction: The use of dapsone in leprosy patients is complicated by a potentially life-threatening hypersensitivity syndrome in about 2% of cases. Although the exact mechanism of DHS remains unclear, numerous reports have described the associations between human leukocyte antigens (HLA, especially MHC) and drug eruptions in patients with various diseases. Acylator status and cytochrome P450 2C9 (CYP2C9) were both associated with metabolism of dapsone, which separately determined by NAT2 genotypes, and genetic polymorphisms of the CYP2C9 gene. Genetic factors influencing the immune response or drug metabolism of dapsone might confer susceptibility.

Methods: MHC region typing and gene polymorphisms of related metabolism enzymes were detected in 122 leprosy patients exposed to dapsone in Southern China and 100 non-leprosy control individuals recruited from local community blood donors.

Results: Definite dapsone hypersensitivity syndrome (DHS) was identified in 20 cases, and was excluded in 102 individuals with more than 8 weeks' exposure to the drug (dapsone tolerant). HLA-B*1301 was present in 18 (90%) of the 20 patients with DHS, and in 7 (6.9 %) of the 102 dapsone tolerant patients (odds ratio 122.1 [95%CI 23.5-636.2], p=6.038×10^-12), while HLA-B*1301 was present in remaining 2 (10%) of the 20 patients with DHS and in only 1 (1 %) of the 102 dapsone tolerant patients. There was no significant association among any of the genotypes or phenotypes of CYP 2C9 (including the single nucleotide polymorphisms of its promoter) and NAT2 with occurrence of DHS.

Conclusion: Genetic susceptibility to DHS is carried on the HLA-B*1301 haplotype, without influence from the genotypes or phenotypes of the important dapsone metabolism enzymes NAT2 and CYP 2C9. HLA-B*1301 can be a useful biomarker in predicting DHS before administering dapsone to leprosy patients in the Chinese population.
**Presentation Time:** Wednesday 18/09/2013 at 14:00 – 15:30

**Symposium Session:** Chemotherapy 2

**Presenter:** Dr Raju M S

**Title:** CORRELATES OF DEFAULTING FROM MDT IN LEPROSY

**Authors:** M. S. Raju 1, M. Elakka 1, P. Faibis 1, J. P. Palia 1, U. K. Hembrom 1, P. S. Rao 1

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**Introduction:** Despite a nationally consistent programme across India, the rates of adherence to Multi Drug Therapy (MDT) appear to differ markedly across geographical areas and treatment centres. As a foundation for planning an innovative and participatory community based influenced by local cultural factors, we undertook a study to explore the pattern of adherence to MDT across India. In this study, we aimed to evaluate correlates of defaulting from MDT.

**Methods:** Data from 3,579 new cases registered for MDT in leprosy in the period 2007-2010 were extracted. The study sample drew from four leprosy hospitals/ treatment centres across the four high endemic states (Uttar Pradesh, Chhattisgarh, Maharashtra and Andhra Pradesh). Year wise proportion of patients defaulting was calculated on aggregate as well as with reference to each centre, and cross tabulated with various demographic and disease related factors. Chi-squared tests were conducted to determine levels of statistical significance.

**Results:** Of the 3,579 new cases, 1944 (54.3%) defaulted, with variation across centres ranging from 44% to 66%. Comparison across type of leprosy indicated a statistically significant difference (p=0.04) between MB (55.7%) and PB (50.6%) cases. Defaulting rates for male patients ranged from 49% to 67.7% across centres, compared with 42.4% to 61.9% for female patients. There was a statistically significant difference (p<0.04) between the overall male (56.3%) and female (51.4%) defaulting rate. The rates of defaulting for those with more severe disabilities (WHO Gr-2) ranged from 44% to 67.9%, across centres, while those with less severe disabilities (Gr-0&1) ranged from 42.6% to 72.5%. Comparisons across severity of disability were only statistically significant across 2 centres. No statistically significant variation was found between the defaulting rates of adult patients (43.6%) to 65.4%) compared with children (36.2%) to 69.3%), respectively. Across each of these categories and centres, defaulting rates remained consistent over the 4 years.

**Conclusion:** Gender of the patient is significantly correlated with defaulting from MDT, which suggests that a gender-specific approach may be beneficial to maximize adherence. The link between severity of disability and adherence to MDT appears unclear, possibly being influenced by local cultural factors. Whether patients were children or adults did not appear to play a significant role in defaulting. The consistency of findings over the 4 year period suggests that behavior change programme conducted over this period may not have impacted defaulting to the extent anticipated.

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**Presentation Time:** Wednesday 18/09/2013 at 14:00 – 15:30

**Symposium Session:** Human Rights and Discrimination

**Presenter:** Doug Soutar

**Title:** AN INCLUSIVE RIGHTS-BASED APPROACH TO LEPROSY

**Authors:** D. Soutar 1

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**Introduction:** Human rights that pertain to people affected by leprosy should not be seen as relating only to health or disability. People affected by leprosy have the same human rights as all people. Inclusive, rights-based development refers to the participation of all stakeholders in development processes. This includes those affected by leprosy.

**Methods:** N/A

**Results:** N/A

**Conclusion:** International legal instruments exist which have a direct relevance to leprosy work. A rights-based approach to leprosy work means utilizing the full range of such instruments. Based on principles of sustainability, integration, quality, equity and social justice, this presentation proposes development of a Charter for Persons Affected by Leprosy. Outlining the rights and responsibilities of those affected. This would set out the ways in which persons affected, the community, health providers and governments can work as partners in a positive and open relationship with a view to improving leprosy related care and enhancing the effectiveness of the diagnosis, treatment and rehabilitation process. It allows for all parties to be held more accountable to each other, fostering mutual interaction and a positive partnership. Advocacy for the reduction of stigma and discrimination and promotion of legislative reform will be important. But the overarching need is for the promotion of broader collaboration.

Traditionally, those affected by leprosy were isolated, ostracised and segregated. People who are marginalized, disabled or oppressed, including those affected by leprosy, need to engage more broadly with each other in order to promote the rights of all. Initiatives focusing only on the human rights of those affected by leprosy will risk failure and their advocates will themselves continue to be marginalized and excluded from the development process unless a more inclusive and universal rights-based approach is taken.
the existence or potential development of stigma in association with other diseases, including a number of neglected tropical diseases.

Methods: A medical model was put forth in the 1960's (Skrinsnes, Leprosy Review, 1964) that discussed how the characteristics of leprosy were especially conducive for producing a negative social response to the disease. Almost forty years later, a campaign to eliminate the stigma was initiated which adopted a human rights approach (IDEA, 2003). An analysis of these two approaches was undertaken to help understand the medical and social reasons why the stigma persists long after the discovery of a cure and how looking at leprosy through the lens of human rights can offer important solutions.

Results: The medical approach to stigma proposed that eight characteristics uniquely join together in leprosy to create a negative social response: 1) The disease would be externally manifest; 2) It would be progressively disabling; 3) It would appear to be incurable; 4) It would be nonfatal and chronic; 5) It would have an insidious onset; 6) It would have a fairly high endemicity, only limitedly epidemic; 7) It would have an incidence rate associated with low standards of living; 8) It would have a long incubation period.

The development of MDT as a rapid and effective cure for leprosy should render the first three characteristics moot since the disease no longer needs to be externally manifest, disabling, or regarded as incurable. In addition, the availability of a rapid cure brings into question whether or not the disease should continue to be labeled as “chronic” for the general public since this implies that it will be long lasting. The other four characteristics can largely be rendered moot by incorporating a human rights approach to dealing with stigma. Having an insidious onset, affecting only certain people in a population rather than being a disease common to many, being associated with low standards of living, and having a long incubation period that adds to uncertainty of the cause of the disease, have led to a historical social response that often tends to place responsibility for the disease on those individuals affected by it. Adopting a human rights approach clearly places any “blame” on society rather than on the individual by focusing on the uncertainty of the denial of rights. Looking at leprosy through the lens of human rights enhances the inherent dignity that is the birthright of every individual (Kofi Annan, 1997). Focusing on the mistakes of society rather than any perceived actions on the part of the individual, the human rights approach is both empowering and self-affirming. It renders irrelevant the characteristics associated with leprosy or any other disease by strongly focusing on the rights inherent in the Universal Declaration of Human Rights that are guaranteed for every individual, without exception.

Conclusion: The evolution of the response to leprosy from one of fear, based largely on medical uncertainty of the cause of the disease, have led to a historical social response that often tends to place responsibility for the disease on those individuals affected by it. Adopting a human rights approach clearly places any “blame” on society rather than on the individual by focusing on the uncertainty of the denial of rights. Looking at leprosy through the lens of human rights enhances the inherent dignity that is the birthright of every individual (Kofi Annan, 1997). Focusing on the mistakes of society rather than any perceived actions on the part of the individual, the human rights approach is both empowering and self-affirming. It renders irrelevant the characteristics associated with leprosy or any other disease by strongly focusing on the rights inherent in the Universal Declaration of Human Rights that are guaranteed for every individual, without exception.

Thus, telling the story of life with Hansen's Disease is an essential part of the struggle for the recognition of patient autonomy, and patient-produced literature becomes a “literature of human rights” as patients use writing to reclaim their rights and their status in society.

Conclusion: In recent years, research on health and the body has provided insights into medicine’s role in the construction of community and everyday life. My research adds to this scholarship by exploring the historical, medical, and social implications of leprosy literature and Hansen's Disease literature, which I argue are distinct genres of writing produced by patients in Japanese leprosaria. This study moves beyond the traditional understanding of patient writing as a single genre in order to emphasize the ways literature reflects social change and shifting medical knowledge. Through an exploration of the intersection of medicine, literature, and human rights as they are reflected across the various literary forms chosen by patients, including poetry, fiction, and essays, I demonstrate how medical knowledge and notions of health and illness are matters of historical, social, and literary relevance.

TOWARD A LITERATURE OF HUMAN RIGHTS: LEPROSY, HANSEN’S DISEASE, AND JAPANESE PATIENT WRITING

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Introduction: In the early twentieth century, Japan instigated increasingly stringent mandates that persons with Hansen's Disease be subject to quarantine. In Japanese leprosaria, patient writing was encouraged to help residents accept their illness and isolation from society. Studies of patient writing have focused on its zenith in the 1930s, when writing by leprosaria residents became so popular it was referred to as the distinct genre of “leprosy literature.” However, the genre resulted in essentializing patients and the diverse literary expressions of their experience. In the 1960s, patient writing was renamed “Hansen's Disease literature” in order to combat stigma associated with the earlier name, yet this did nothing to challenge assumptions of a monolithic corpus. I argue that reading “leprosy literature” and “Hansen’s Disease literature” as a single genre has led to oversimplified responses to patient writing, either celebrating it as protest or dismissing it as coerced to support state policies. I consider how the content and purposes of the genres have transformed in response to changing social and medical knowledge in order to clarify the distinction between leprosy literature and Hansen’s Disease literature. In this way I reveal the diversity and the richness of patient writing in Japanese leprosaria.

Methods: I take the introduction of Promin as the break between “leprosy literature” and “Hansen’s Disease literature.” By tracing the history of patient writing and drawing on a variety of materials, including patient magazines published within the hospitals, I argue that leprosy literature provided a way for sufferers to create social connections and communities, while the post-Promin Hansen’s Disease literature became a way leprosaria residents contested social stigma and government policies targeting their illness. I analyze examples of both pre-and post-Promin literature in order to reveal the continuities, changes and complexities of the genres.

Results: My work challenges a one-dimensional view of patient writing. By exposing the changes underscored by the shifting name of the genre, I trace the various ways patients use literature to engage the world outside the hospital. This study has implications beyond Japan as it speaks to the global processes through which patients overcome stigma and reclaim their human rights.

REFERENCES

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4VARIOS DISABILITIES IN EASTERN NEPAL

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The measurement of participation restrictions among people with various disabilities in Eastern Nepal

Introduction: People with disabilities may face various challenges across life domains including work, social and mobility. The present study examined the level of participation restrictions among people with various disabling conditions in Eastern Nepal.

Methods: The 18-item Participation Scale was used to measure participation restrictions among people with various disabling conditions. Internal consistency, inter-tester reliability, construct validity and floor and ceiling effects of the Participation Scale were also assessed.

Results: A total of 153 respondents and 55 controls were included in the study. The majority of the respondents had a leprosy-related disability. Sixty-three percent of the participants reported moderate to extreme restrictions in social participation. Especially severe restrictions in work-related areas were identified, followed by problems in the social areas of life and in the mobility domain. The internal consistency of the Participation Scale, measured with Cronbach’s alpha, was 0.78 for the work-related participation subscale and 0.93 for the general participation subscale. The inter-tester reliability coefficient was 0.90. All hypothesized correlations were as expected confirming the construct validity of the scale. Only the subscale work-related participation showed ceiling effects.

Conclusion: The majority of the respondents reported a considerable level of participation restrictions across life domains. Interventions should be developed especially targeting work and social life domains. Besides, the Participation Scale showed to be a valid and reliable instrument in this particular cultural setting.

The Plan Brazil without poverty and the leprosy

Regiane Aparecida Cardoso de Paula

Cardoso de Paula, Coordenação Geral de Hanseníase e Doenças em Eliminação/CGHDE/DEEP/ SVS/MS/Instituto Educacional de Ensino e Pesquisa/SP, Rosa Castilhia Franca Ribeiro Soares Coordenação Geral de Hanseníase e Doenças em Eliminação/CGHDE/DEEP/SVS/MS, Eliane Ignotti Universidade do Estado de Mato Grosso UNEMAT, Cáceres – MT.

Introduction: The plan Brazil without poverty mobilized the Brazilian government regarding to reduce beyond the poverty the diseases related to the poverty that leprosy is included.

Objective: To describe the plan “Brazil without poverty” focusing public health activities for leprosy.

Method: Descriptive analyses based on in the governmental documents and the leprosy database.

Results: The plan is intersectoral, and integrates dozens of actions from many government areas. The main goal of the plan is to take off from extreme poverty 16 million inhabitants. One of its actions is focused to guarantee the access of the poorest population to health services. The diseases close to the elimination are considered priority for facing the poverty reduction in the country. One of these health actions is related to the diseases related to the poverty: leprosy. It is a new approach that impacts directly in the school age students’ health that lives in the leprosy
endemic areas. In December 2012, 191 priorities municipalities for leprosy diagnosed in young people at the age of 15 and 1041, new leprosy cases were diagnosed in this part of population. The plan for 2013/2014 aims to encourage diagnose and treatment in cases of leprosy children younger than 15 of age, mainly in 258 municipalities considered priority for leprosy.

Conclusion: As leprosy is one the diseases related to the poorest people, the reduction of this disease by the MoH is based on aggregate efforts of all government levels to reach the elimination of leprosy as a public health problem and consequently to reduce the poverty until 2015.

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Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Immunology 2
Presenter: Caroline de Sales Marques

TLR1 GENE IS ASSOCIATED WITH LEPROSY RISK AMONG BRAZILIANS

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Introduction: Leprosy can be considered a complex disease in both environmental and host factors can influence the disease outcome. From among several genetic and epidemiological evidences, the broad spectral phenotype and the low genetic variability of M. leprae suggest that host genetic factors may be of major influence towards infection and disease progression. It has been suggested that subtle genetic variations in relevant immune response genes are regulating every step of the host-pathogen interaction in leprosy outcome. Pathways triggered by PRRs, such as Toll-like receptor 1 (TLR1), are key to define infection, and polymorphisms located at TLR1 genes were repeatedly associated with leprosy per se and leprosy reactivation. The goal of our study was investigated the association between TLR1 gene and leprosy per se in Brazilians, and validate functionality the associated marker, evaluating the downstream activation of the TLR1 pathway.

Methods: First, we performed a case-control study in a population from Bauru, São Paulo state, and a family-based study from Almenara, Minas Gerais state. Then, we conducted a replication approach into two case-control samples from Rio de Janeiro and Rondonopolis respectively, enrolling a total of 3,162 Brazilian individuals. DNA samples were genotyping by allelic discrimination using Real Time PCR TaqMan assay (Applied Biosystems). For case-control studies, the association of SNP (N248S, rs4833095) with leprosy was evaluated by logistic regression model, comparing the frequencies between cases and controls, trough software R 2.15. In the family-based study, a Transmission Disequilibrium Test (TDT) was performed, based on counts of transmission of a marker allele from heterozygous parents to affected child (FBAT software). For functional studies, we compared carriers and non carriers of risk variation, and evaluated the cytokines profile from PBMCs of healthy subjects by ELISA (Mann-Whitney test), as well as the changes on TLR1 structure by molecular dynamics analyses (Pymol and Gromacs 4.5.4 softwares).

Results: The TLR1 248S allele was significantly more frequent in patients than controls, and associated with susceptibility to leprosy per se in both case-control (ORrisk = 1.81, p=0.004) and family-based (p=2.02, p=0.05) studies. This association was consistently replicated in other populations (ORrisk = 1.59, p= 0.006; ORrisk = 1.56, p=0.03), corroborating 248S as a susceptibility factor for leprosy in Brazilians. Additionally, we demonstrated that PBMCs carrying 248S produced lower log (TNFb/IL-10) when stimulated with sonicated M. leprae or BCG Moneau strain. Finally, comparative modeling and molecular dynamics simulations indicated that 248S- TLR1 structure was more electro-negative than 248N-TLR1.

Conclusion: Our results suggest that TLR1 248S SNP is associated with leprosy risk, consistent with its hypo-immune regulatory function and altered electrostatic profile. From this work, we can conclude that genetic variations at TLR1 gene may influence susceptibility profile to leprosy per se among Brazilians.

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Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Immunology 2
Presenter: Bruno Silva

ROLE OF IFN-GAMMA-MEDIATED AUTOPHAGY IN ANTIMICROBIAL RESPONSE AGAINST MYCOBACTERIUM LEPRAE

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Introduction: Leprosy is a chronic infectious disease caused by the intracellular pathogen Mycobacterium leprae (ML). Previous data suggest that the establishment of different clinical forms of leprosy is driven by host innate mechanisms. Macrophages from multibacillary (LL) and paucibacillary (BT) patients seem to have a different behavior in relation to the bacteria. While in LL patients there are highly infected macrophages, in BT rare or few bacilli are found. Electron microscopy studies showed the presence of phagosomes with double membrane in macrophages exposed to ML, suggesting a possible involvement of autophagy in the immunomodulatory response. In the present study we evaluated the role of autophagy in the immune response to ML.

Methods: THP-1 monocytic cell line differented with PMA (200 nM), monocyes from healthy subjects and LL and BT macrophages isolated from skin lesions were used. For evaluate autophagy transmission electron microscopy, Western blotting, immunohistochemistry and immunofluorescence techniques were used. Cethelicidin and b-defensin 2 gene expression were evaluated by real time PCR. IL-15 and IL-1D were evaluated by ELISA. IL-10 activity was measured by HPLC.

Results: Ultrastructural analysis showed a higher number of autophagosomes in isolated skin lesion cells from BT patients compared to LL patients or normal tissue. The increase of the autophagosome marker LC3-II observed in skin biopsies from BT patients was associated with higher gene expression of cethelicidin and b-defensin 2. Previous studies have demonstrated that IFN-γ induces autophagy in human monocytes and that the levels of IFN-γ were significantly raised in skin cells and serum of BT patients when compared to LL. Here, we demonstrated that IFN-γ treatment in ML-stimulated THP-1 cells decreased the interaction of the bacilli with the host cell, accompanied by increased IDO activity and LC3-II and Alq3 expression. The autophagy induction by ML was not dose dependent, and ML at 10:1 induced higher expression of LC3-II when compared to 2:1 or 1:1. There was an increase on LC3-II expression in vivo BT macrophages when compared to LL, in the presence or absence of IFN-γ. IFN-γ treatment promotes ML and LC3-II co-localization in THP-1 macrophages and leads to increased levels of IL-15 and decreased levels of IL-10 in the culture supernatants. The pre-treatment with autophagic inhibitors wortmannin or 3-MA was able to reduce IFN-γ induced LC3-II expression and led to decreased IL-15 levels, without interfere with IL 10 production, after stimulation with IFN-γ and ML.

Conclusion: These data indicate that IFN-γ induces IL-15 in ML stimulated macrophages, which contributes to increase the microbial activity in host cells by autophagy induction. These findings may contribute to a better understanding of the mechanisms associated with leprosy immunopathogenesis.

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Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Immunology 2
Presenter: Yuim Maeda

EXOSOMES RELEASED FROM MYCOBACTERIUM LEPRAE INFECTED HUMAN DENDRITIC CELLS CAN ACTIVATE T CELLS

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Introduction: Leprosy is caused by infection with Mycobacterium leprae, which is an intracellular pathogen. It is known that the most susceptible human cells are Schwann cells, macrophages and dendritic cells (DCs). Previously, we reported that M. leprae infected DCs could induce higher production of cytokines such as IL-12 through TLR2, when activated with lipopeptide (LipoK), and these activated DCs stimulated autologous T cells. Since exosomes derived from DCs and macrophages are known to contribute to antigen presentation, we characterized the exosomes derived from M. leprae infected human monocytes and showed that IFN-γ promotes ML and LC3-II co-localization in THP-1 macrophages and leads to increased levels of IL-15 and decreased levels of IL-10 in the culture supernatants. The pre-treatment with autophagic inhibitors wortmannin or 3-MA was able to reduce IFN-γ induced LC3-II expression and led to decreased IL-15 levels, without interfere with IL 10 production, after stimulation with IFN-γ and ML.

Conclusion: These data indicate that IFN-γ induces IL-15 in ML stimulated macrophages, which contributes to increase the microbial activity in host cells by autophagy induction. These findings may contribute to a better understanding of the mechanisms associated with leprosy immunopathogenesis.
the expression of antigens were analyzed. For Western blot analyses, esosomes were suspended in tris-buffered saline, mixed with Laemmli buffer before loading onto SDS gels. Rabbit anti-M. leprae membrane protein antibody was kindly obtained from Dr. Patrick Brennenr John Spencer from CSU.

Results: Higher expression of HLA class I, II and CD86 antigens were observed on the surface of the esosomes obtained from M. leprae infected DCs stimulated with LipoK, when compared to that infected by M. leprae alone. The results suggest that TLR2 involvement can enhance the release of esosomes from infected cells. When the bacilli was labeled with FITC, higher level of fluorescence was observed from esosomes derived from LipoK stimulated DCs, indicating that these esosomes may contain M. leprae components. When the purified esosomes were characterized by western blot analyses using polyclonal antibody to M. leprae membrane fractions, appearance of a broad band indicated that indeed the esosomes contain the M. leprae membrane components. Further, stimulation of T cells, with the esosomes purified from culture supernatants, showed that the esosomes derived from LipoK stimulated M. leprae infected DCs could induce higher level of IFN-γ production from autologous T cells.

Conclusion: The study indicates that these LipoK induced esosome production could activate T cells probably by presenting M. leprae antigens and therefore they may be useful for immunotherapeutic applications.

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**Presentation Time:** Wednesday 18/09/2013 at 14:00 – 15:30

**Symposium Session:** Immunology 2

**Presenter:** Mr. Naveenendra Suryadewara

**TITRE OF INFLUENCE OF INTRON II MICROSATELLITE POLYMORPHISM IN HUMAN TOLL-LIKE RECEPTOR 2 GENE IN LEPROSY**

N. C. Suryadewara 1,2,∗ on behalf of 1, S. K. Neita Kivata 1, V. L. Valluri 1, S. Ponnagadala 1, P. Dwaraj 1, S. Jain 1, S. Ksr 1, A. Mps 1 and Immunology and molecular biology division

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Introduction: Leprosy is a chronic granulomatous infection caused by the obligate intracellular organism Mycobacterium leprae. TLR2 plays a key role when activated by M. leprae lipoproteins with an ability to start protective responses which induce killing and therefore control of disease spread. Microsatellite polymorphisms in intron 2 of TLR2 gene have been reported to be associated with development of clinical features of several infectious diseases. The study aims to evaluate the influence of GT microsatellite on the expression of TLR2 which could make humans more prone to M. leprae infections.

Methods: A total of 279 individuals were enrolled in the study, 88 were leprosy patients, 95 were household contacts (HHC) and 96 were healthy controls (HC). Genotyping was done using PCR-sequencing method. TLR2 mRNA expression was analyzed by RT-PCR. IL-10 and IFN-γ levels in MLISA stimulated cell culture supernatants were measured using ELISA. Statistical analysis was performed using Chi-Square (χ²) test and t-tests.

Results: Allele genotype of TLR2 microsatellite which includes longer GT repeats was associated with susceptibility to leprosy with high IL-10 levels in household contacts (HHC) and 96 were healthy controls (HC). Genotyping was done using PCR-sequencing method. TLR2 mRNA expression was analyzed by RT-PCR. IL-10 and IFN-γ levels in MLISA stimulated cell culture supernatants were measured using ELISA. Statistical analysis was performed using Chi-Square (χ²) test and t-tests.

Conclusion: To conclude allele genotype that includes longer (GT) repeats in Intron 2 of TLR2 gene with associated high IL-10 levels might act as a marker for susceptibility to leprosy and high IL-10 producing allele of TLR2 microsatellite might predispose house hold contacts to leprosy infection.

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**Presentation Time:** Wednesday 18/09/2013 at 14:00 – 15:30

**Symposium Session:** Immunology 2

**Presenter:** Daniel Carvalho

**POSSIBLE ROLE OF PTX3 ON LEPROSY: M. LEPRAE RECOGNITION, PHAGOCYTOSIS MODULATOR OR VESSEL INFLAMMATION MARKER?**

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Introduction: PTX3 is the first member of the long pentraxin family. Macrophages, dendritic cells and endothelial cells are major producers of PTX3 in response to Toll-like receptor engagement and inflammatory cytokines (e.g. TNFα and IL-1). It was also described that PTX3 is important to fungi opsonization and responses. In other hand PTX3 has a protective role on vascular inflammation, and can also be used as an early marker of inflammation mainly those related to vessels. In other hand, PTX3 also play an important role on phagocytosis of late apoptotic cells, mainly neutrophils, being expressed on membrane of those cells and when blocked by monoclonal antibody or excess of soluble PTX3 the phagocytosis is reduced. Histologically type 2 reactions are characterized by the presence of vasculitis, a dense neutrophils infiltrate and apoptotic cells, being compatible with PTX3 involvement.

Methods: Our aim was to evaluate the role of PTX3 in ERL. We tested skin biopsies for PTX3 expression by PCR and immunohistochemistry, during ERL and after one week of thalidomide treatment. In vitro experiments were made to demonstrate the PTX3 gene expression by M.leprae and its modulation by thalidomide. We also accessed M.leprae opsonization by PTX3 and its phagocytosis by flow cytometry while cytokines were measured by ELISA. Blood neutrophils from ERL patients and normal donors were evaluated to PTX3 expression and phagocytosis also by flow cytometry.

Results: Here we show an increased PTX3 gene expression at ERL lesions that is reduced at lesions in remission due thalidomide treatment in four accessed patients, being confirmed by immunohistochemistry. In vitro assays showed that human macrophages activated by LPS and M.leprae had the PTX3 gene expression reduced in presence of 30µg/ml thalidomide. However we tried to show that PTX3 can be seen in leprosy in a fashion more than a just an inflammatory marker. When 20µg/ml M.leprae was incubated with 100µg/ml of PTX3, it can be identified by anti-PTX3 antibodies, indicating that PTX3 binds to M.leprae. In the same way, PTX3-treated M.leprae is 39±2 more phagocytosed by monocytes than non-treated mycobacteria. We also demonstrate an increased expression of cytokines IL-8 and MIP-1β produced during in-vitro infection by macrophages when M.leprae is opsonized by PTX3, means that PTX3 may act in mycobacteria recognition and can also have an effect on ERL development.

Conclusion: It is still not clear the whole participation of PTX3 in leprosy, especially on ERL, however our results indicates the participation of this molecule on recognition of mycobacteria and clearance of apoptotic cells from tissues could affect the pathophysiology on disease.

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**Presentation Time:** Wednesday 18/09/2013 at 14:00 – 15:30

**Symposium Session:** Immunology 2

**Presenter:** Xinjiang Zhang

**TLR2 mRNA AND TLR4 mRNA EXPRESSION LEVEL ON PBMC OF LEPROSY PATIENT**

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Introduction: Leprosy is a chronic infectious disease, which causes serious human health problems. Guizhou Province was a major leprosy epidemic area in China. From 1990 to 2008, there were a total of 28,721 cases of leprosy patients found and 10,429 cases of survival in Guizhou. Toll-like receptors (TLR) are pattern recognition receptors that recognize pathogen-associated molecular patterns and functions, and critical mediators of proinflammatory cytokine response. Our previous studies have shown that TLR2 protein is strongly expressed in epidermis and in all skin specimens from bacillary leprosy (TT) and lepromatous leprosy (LL). TLR4 is weakly expressed in stratum basale layer in both TT and LL. These results suggest that the pattern recognition receptors, TLR2 and TLR4, may mediate and take part in the innate immune response in leprosy. To determine whether the TLR2 and TLR4 are involved in the process of leprosy infection and immunity, we collected blood samples from patients with leprosy to identify the relationship between expression of TLR2 mRNA and TLR4 mRNA and leprosy infection.

Methods: The peripheral blood samples were collected from 150 patients who have been diagnosed for leprosy infection by typical clinical symptoms and positive leprosy bacillus, as well as histopathological examination. The patients were recruited at the institute for CDC of the Bijie district, Guizhou Province of China. Among 150 cases of leprosy patients, there were 103 cases of LL and 47 cases of TT. The blood samples of control group were collected from 50 cases of healthy adult volunteers. Informed consent was obtained from each patient and the study was approved by Human Research Ethics Committee. After separation of peripheral blood mononuclear cells PBMC from blood, total RNA were extracted from PBMC with Trizol method. Total RNA was quantified and purified. RT-PCR was performed using PrimerScript™ (TaKaRa). PCR primers were as follows: TLR2 (146bp), 5′-GAAGAGTTCCACGACGAGCATC-3′(forward) and 5′-GAATGAAGGGCCTGGCTATTAGGAACA-3′(reverse); TLR4 (143bp), 5′-TGAGAGCCTGCTAGGATGGAAC-3′(forward) and 5′-ATGCCGCAACACAACTCCCTTAA-3′(reverse); α-tubulin (186bp), 5′-TGGACCCCGCAGCAATGA-3′(forward) and 5′-CTAGTGATCCTCGGGCTAGA-3′(reverse).The significance of the observed differences was calculated using Student’s t-test. The correlation analysis was done with Pearson's correlation. The analysis of the data was done with SPSS software version 16.0 and the p value of less than 0.05 was considered to be significant.

Results: The levels of both TLR2 mRNA and TLR4 mRNA expression were significantly higher in leprosy in comparison with normal controls (0.56±0.06 vs. 0.22±0.10 for TLR2 mRNA, P<0.01; 0.34±0.04 vs. 0.21±0.07 for TLR4 mRNA, P<0.01). In the subtypes of leprosy, both TT and LL exhibited a higher expression of TLR2 mRNA (0.62±0.07 vs. 0.22±0.10 for TT, P<0.05; 0.43±0.11 vs. 0.21±0.07 for LL, P<0.05). There was no difference in TLR2 mRNA expression between LL and TT. In comparison with both normal controls and LL leprosy, TT displayed a higher levels of TLR4 mRNA expression (p<0.05).
Conclusion: The levels of TLR2 mRNA and TLR4 mRNA expression in the leprosy group are significantly higher than that in the control group. These results suggest that TLR2 and TLR4 may play an important role in the pathogenesis of leprosy, especially TLR4 could be involved in the development of TT leprosy.

Funding: The study was supported by research grants from National Natural Science Foundation of China(30960350)

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Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Epidemiological Analyses
Presenter: Paul Fine

LEPROSY ON THE EDGE OF ITS DISTRIBUTION

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Introduction: Much of the discussion of leprosy trends in recent years has focused upon the (relatively) “high prevalence” populations of the world. This presentation will examine the patterns and trends of leprosy at the edge of its distribution, in areas where the disease, and perhaps the infection, are apparently disappearing, or have relatively recently disappeared. Such areas include parts of Southern Europe, Northern and Southern Africa, Southern Latin America, Japan, and Australia. The difficulties of studying leprosy in such populations will be discussed, including the small numbers of cases, absence of a test for infection, lack of certainty as to where infection may have taken place, long and variable incubation periods, and absence of a leprosy programme. Though conclusions must be cautious, because of these constraints, the consistency of patterns both between populations, and with our understanding of the natural history of M. leprae infection, allow reasonable confidence in describing patterns and trends at the apparent edge of leprosy’s distribution today. Data will be presented from several countries, and there will be an encouragement for other countries to examine this issue. Despite the problems of obtaining and interpreting data from such populations, observed patterns reveal aspects of the natural history of M. leprae which are difficult to discern in populations where leprosy is more common. And they can inform discussion of the probable long term future of the disease in different populations of the world.

Methods: xx

Results: xx

Conclusion: xx

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Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Epidemiological Analyses
Presenter: Dr Ponniyah Manickam

BAYESIAN MODELS DEMONSTRATE DECLINING TRENDS IN LEPROSY INCIDENCE IN SOUTH INDIA

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Introduction: Leprosy trends have been classically studied through age, period and cohort analysis. Leprosy distribution is uneven within high endemic regions and sometimes within smaller levels. Additionally, for a chronic disease like leprosy, birth cohorts undergo long duration of exposure to socio-economic and environmental changes and control activities. Hence, such spatio-temporal dependence has to be accounted while analysing leprosy trends and Bayesian models accommodate the same. We examined leprosy incidence trends from South Indian leprosy vaccine trial data through Bayesian space-time models.

Methods: South India leprosy vaccine trial was a randomized-placebo controlled study (Gupte et al.1998) conducted during 1991-2003. It included 171,400 individuals without leprosy or any serious illness and aged 1-65 years. They were from 148 rural administrative units (called panchayats) comprising of 264 contiguous villages in Chingldeput district, South India. Three follow-up surveys were conducted (1993-95, 1997-98 and 1999-2003) to identify new cases of leprosy. Majority of the cases were of pauci-bacillary and a small proportion was multi-bacillary leprosy (2%). Incidence cases and panchayat population were cross-classified into 20 age groups (1-4, 5-9, 90, 94-95, 99) and mid-points of three survey time-periods (1994, 1997 & 2001) since time taken for each of the surveys was varying in length. Cohorts were computed on the basis of survey year, period and age. There were 20 overlapping or rolling birth cohorts defined in the Bayesian model, considering the mid-point, the cohorts were labeled as 1902, 1907,...,1997. The time taken for each of the surveys was varying in length. Cohorts were computed on the basis of survey year, period and age. There were 20 overlapping or rolling birth cohorts defined in the Bayesian model, considering the mid-point, the cohorts were labeled as 1902, 1907,...,1997. The variation of incidence of leprosy over space (panchayat) and time was modeled from 1991 to 2003 over 148 panchayaths after controlling for age. We used expected incidence of 40 per 10,000 in the study area as the prior for the model. We used Space-Cohort (SC) and Space-Time (ST) models with and without including interaction terms. The models with and without interaction terms were compared using Deviance Information Criterion (DIC). The models with interaction term out performed with smaller DIC values. Hence, we used SC and ST models with interaction terms for subsequent analysis. We used Gibbs sampling in WinBUGS to obtain posterior distributions and estimate median relative risks (RR) and 95% credibility intervals (CI) for cohort, period and spatial effects.

Results: The risk of leprosy steadily declined for successive birth cohorts (RR of 6.4 (1902) to 0.42 (1997)) except for two birth cohorts (1912-21 and 1917-26). Those who were born after 1996 had higher RR (RR=0.42) less risk of leprosy as compared to those born before 1997. The period effect over three time-points using ST model showed a significantly higher risk for 1994 (RR=1.31; 95% CI=1.23-1.4), whereas 2001 had significantly lower risk than the overall average (RR=0.74; 95% CI: 0.69-0.79). The RR for leprosy across panchayaths ranged from 0.51 to 1.93. Thirteen panchayaths had a significantly higher risk of leprosy.

Conclusion: We observed that risk of leprosy declined for those born after 1956 and over three time-points, hence, documenting reduced leprosy transmission. The increased risk of leprosy for older cohorts indicated possibility of endogenous reactivation of past infection. The presence of clusters with continuing risk of leprosy indicates the need to identify and plan focused strategies for such small areas within low-endemic regions.

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Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Epidemiological Analyses
Presenter: Lucia Freitas


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Introduction: Brazil is the second country in the world with the largest number of leprosy cases, and presents and presents striking social inequalities and regional disparities. Leprosy occurrence is unequally distributed across the country’s territory. The study aimed to investigate the association between selected socioeconomic characteristics of the Brazilian municipalities and the incidence rate of leprosy in the period between 2009-2011.

Methods: This is an ecologic study in which each of the Brazilian municipalities were the units of analysis. Data on leprosy cases were acquired from the Notifiable Diseases Information System (SINAN). Information on characteristics of the municipalities were obtained from the national demographic census 2010. The average, median, fistic quartile (1Q) and third quartile (3Q) incidence rates of leprosy were calculated per 100,000 inhabitants for all Brazilian municipalities for the period 2009-2011. The distribution of incidence rates in municipalities was non-symmetric. Bootstrapped quantile regression models were fitted to test the associations (p-value < 0.05). Variables with p-value < 0.2 were kept in the final model to adjust for possible confounding.

Results: In the period 2009-2011, the average incidence rate of leprosy in Brazil was 18.5 per 100,000 inhabitants, and the median incidence rate among municipalities was 8.4 per 100,000 inhabitants (1Q-3Q: 0.7-25.0). At the adjusted analysis, the median leprosy incidence rate ratio was 1.5 (95%CI: 1.1; 1.7) in the small municipalities (up to 50,000 inhabitants) compared to large ones (over 100,000 inhabitants), 2.2 (95%CI: 1.8. 3.1) for municipalities with higher unemployment rates (> 8.0%) compared to those with lower (<= 3.0%), 4.5 (95%CI: 1.9; 6.3) for municipalities with higher social inequality rates (20-20 income ratio) (>20%) compared to those with lower; 4.5 (95%CI: 2.6; 7.9) with higher literacy rates (>23.0%) compared to those with lower (<= 7.0%); and 6.6 (95%CI: 3.5; 9.6) with higher poverty rates (>43.0%) compared to those with lower (<= 25.0%). The median incidence rate were 37.9 (95%CI: 34.3; 41.6) and 29.5 (95%CI: 24.7; 34.3) at the Center-Western and Northern regions, respectively, compared to those living at the Northeastern. The proportion of households with inadequate solid waste management showed no association after adjustment.

Conclusion: Leprosy incidence is still high in Brazil. The study revealed an ecological association between poorer socioeconomic characteristics of municipalities and higher median leprosy incidence. It is necessary to implement highly effective control measures, especially at small and poor municipalities located at the Center-Western and Northern regions, in which leprosy is highly endemic.
Introduction: Other than humans, nine-banded armadillos (Dasypus novemcinctus) are the only known natural host for leprosy, their natural habitat ranges from Northern Argentina to the Central United States. Biomarkers of M. leprae have been reported among armadillos from across the range and the contact with this animal has been suggested as a risk factor for leprosy.

Methods: To better understand the role of armadillos in the ecology of leprosy in southern United States, we re-sequenced genome of M. leprae isolated from 3 human patients and 1 infected armadillo, and aligned against already available genome sequences of standard strains. Wide geographical affiliation was determined by single nucleotide polymorphism (SNP) based analysis and a set of 10 variable number tandem repeat (VNTR) was also analyzed for further discrimination of various SNP subtypes.

Results: Although, all 7 M. leprae genomes compared were 99.99%, identical, we have identified 52 informative markers and developed a single nucleotide polymorphism (SNP) based algorithm to define the geographical affiliation of M. leprae strain. Using this combination of SNP-VNTR analysis, we found that 95% of the armadillos and 64% of the autochthonous human cases to define the geographical affiliation of 52 informative markers and developed a single nucleotide polymorphism (SNP) based algorithm to define the geographical affiliation of M. leprae strain. Using this combination of SNP-VNTR analysis, we found that 95% of the armadillos and 64% of the autochthonous human cases

Conclusion: Leprae appears to be an emerging zoonosis in the US, and may be present in among 10 patients and multiple armadillos from South Florida where armadillos were free from a second zoonotic strain (3I-2-v15; which differs at three VNTR loci) and was commonly present through zoonotic transmission. Combination of SNP and VNTR analysis appeared an appropriate approach for further analysis and a set of 10 variable number tandem repeat (VNTR) was also analyzed for further discrimination of various SNP subtypes.

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Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Epidemiological Analyses
Presenter: Dr Vasna Joshua

BAYESIAN MODEL. ECOLOGICAL FACTORS AND TRANSMISSION OF LEPROSY IN AN ENDEMIC AREA OF SOUTH INDIA

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Introduction: Interactions between Mycobacterium leprae and the human host and its dynamics of transmission are still not clear. Geographic clustering of cases is suggestive of role of environmental factors in the spread of leprosy. Bayesian model can analyze spatial clustering during the estimation of model parameters. The objective of our study was to investigate environmental correlates of leprosy based on spatial dependency using Bayesian model.

Methods: Data from an endemic area of leprosy, across 148 panchayats (Population size: 300,000) from two taluks in South India were used for this analysis. In 2001, totally 2098 leprosy cases were identified in this population. The study area exhibited spatial clustering of cases confirmed using various measures of spatial autocorrelation. We employed a Bayesian model and included demographic data (gender, age, caste, contact status) as well as environmental and ecological data (population density, Famine Early Warning System (FEWS) rainfall data; Moderate Resolution Imaging Spectroradiometer (MODIS) Day land Surface Temperature and Normalized difference Vegetation Index (NDVI)). Prevalence of leprosy was adjusted for spatial and non-spatial random effects using OpenBUGS software for analysis.

Results: Bayesian models with the spatial random effect out-performed with less deviance information criteria. Male gender (RR=1.08; 95% CI=1.04-1.12), contact status (RR=1.26; 95%CI=1.21-1.30) and higher NDVI (RR=1.07; 95% CI=1.01-1.08) were independent correlates of leprosy prevalence. The spatial dependency between households within a radius of 250 meters (RR=0.79; 95% CI=0.72-0.88) was significant.

Conclusion: As reported previously male gender and contact status were found to be associated with leprosy prevalence. Significant association between NDVI and leprosy prevalence calls for exploring the role of indirect transmission.

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Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Nerve Injury in Leprosy
Presenter: Marcia Jardim

PATTERN OF NERVE CONDUCTION STUDY IN LEPROSY NEUROPATHY

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Introduction: Numerous case reports or case series in the literature show great variation in nerve conduction studies (NCS). The reflection of the pathological process in the NCS remains unclear and the electrophysiological pattern of leprosy neuropathy still needs to be defined.
Methods: Patients from a reference service were evaluated before, during, and after treatment with MDT. NCS were performed at least once prior to the initiation of MDT, prior to the discontinuation of MDT, and at least one after therapy. Polyneuropathy was defined as the presence of motor nerve (MNCV) recordings and 3 mm skin biopsies at the distal leg. Biopsies were performed in sNCS and mNCS during MDT that showed mononeuropathy. The presence of axonal or demyelinating lesion in at least one nerve was more frequent in sNCS than in mNCS.

Results: In the sNCS, the presence of a lesion at each nerve was significantly more frequent in SNCS than in mNCS, while demyelination was more frequently observed in the mNCS.

Methods: Eleven naïve and 9 M.leprae-infected armadillos underwent motor nerve conduction studies (mNCS) and sensory nerve conduction studies (sNCS) after MDT. Tests were performed 2 months before the beginning until 2 months after the end of MDT; after-MDT (n=364), NCS performed 2 months after completing the MDT scheme. Normal sensory and motor function was observed in 30/230 naïve NCS before-MDT, 27/228 during MDT and 35-364 after-MDT, while severe dysfunction, demonstrated by sensory-motor polyneuropathy, was seen in 3.6%, before-MDT, 0.89%, during MDT, and 1.89, after-MDT. No conduction could be registered in 20 (8.73%), 13 (5.7%) and 31 (8.5%) sNCS before, during and after MDT, respectively. Motor polyneuropathy had a mixed pattern at all periods of evaluation (5.2%, 7.8%, and 3.3%). Among the sensory nerves, the sural was significantly the most affected nerve at all periods; the ulnar and median nerve were as frequently affected, except for after-MDT, in which the ulnar nerve was slightly more affected.

Methods: A total of 822 NCS from 509 leprosy patients (67.4%, male, mean age 40.9 ± 1.59, 57.6% MB, 23.7% grade 2 disability) were included. NCS exams were divided into 3 groups: before-MDT, during MDT, after-MDT. Tests performed until 2 months after patients were started on MDT, during MDT (n=228), tests performed 2 months after the beginning until 2 months after the end of MDT; after-MDT (n=364). NCS performed 2 months after completing the MDT scheme. Normal sensory and motor function was observed in 30/230 naïve NCS before-MDT, 27/228 during MDT and 35-364 after-MDT, while severe dysfunction, demonstrated by sensory-motor polyneuropathy, was seen in 3.6%, before-MDT, 0.89%, during MDT, and 1.89, after-MDT. No conduction could be registered in 20 (8.73%), 13 (5.7%) and 31 (8.5%) sNCS before, during and after MDT, respectively. Motor polyneuropathy had a mixed pattern at all periods of evaluation (5.2%, 7.8%, and 3.3%). Among the sensory nerves, the sural was significantly the most affected nerve at all periods; the ulnar and median nerve were as frequently affected, except for after-MDT, in which the ulnar nerve was slightly more affected. Regarding the motor nerves, the frequency of alteration was significantly different between the 3 nerves evaluated before and after-MDT, the median nerve being the least affected. The peroneal nerve was the most affected during-MDT and the ulnar nerve, after-MDT.

Results: From the 822 NCS from 509 leprosy patients, we observed that the ulnar nerve was significantly the most affected nerve at all periods; the median and nerve medians were as frequently affected, except for after-MDT, in which the ulnar nerve was slightly more affected. For the motor nerves, the frequency of alteration was significantly different between the 3 nerves evaluated before and after-MDT, the median nerve being the least affected. The peroneal nerve was the most affected during-MDT and the ulnar nerve, after-MDT.

Methods: The number of the nerves and the type of lesion. In the NCS the primary lesion may be demyelinating, axonal or mixed according to the lesion pathogenesis. The invasion of Schwann cells by Mycobacterium leprae may induce simultaneous or progressive lesion of the axon, the myelin sheath and the perineurium. Leprosy neuropathy is a complex disease involving different pathological processes which may occur at different periods during the course of the disease.

Results: In the sNCS, the presence of a lesion at each nerve was significantly more frequent in SNCS than in mNCS, while demyelination was more frequently observed in the mNCS.

Conclusion: The asymmetric pattern of nerve involvement in leprosy had been previously described as a “mosaic polyneuropathy”. Although we observed seldom cases of polyneuropathy, the extension of alterations is characterized as mononeuritis multiplex. The asymmetry observed is due both to the number of the nerves and the type of lesion. In the NCS the primary lesion may be demyelinating, axonal or mixed according to the lesion pathogenesis. The invasion of Schwann cells by Mycobacterium leprae may induce simultaneous or progressive lesion of the axon, the myelin sheath and the perineurium. Leprosy neuropathy is a complex disease involving different pathological processes which may occur at different periods during the course of the disease.
Methods: HRUS of the ulnar (UN), median (MN), lateral popliteal (LP) and posterior tibial (PT) nerves were done in 74 leprosy patients using an eSonicMyLab 5 Color Doppler System using linear array probe (L4A35 Bandwidth frequency of 6.18 MHz). Out of 74 cases, 53 were in reaction (cases) and 21 were not in reactions (controls). We also compared the sonographic findings in these patients with those of 55 healthy Indian controls.

Results: The nerves were significantly thicker in the leprosy patients ascompared to healthy controls (p<0.0001) for each nerve. The kappa for clinical palpation and nerve enlargement by sonography was 0.27 for all examined nerves (0.31 for UN, 0.22 for PT and 0.21 for LP). Ulnar nerve was significantly thicker in reactional patients as compared to control leprosy patients (p<0.015). Increased neural vascularity by CD imaging was present in 75 (13%) of the 584 peripheral nerves examined, ulnar 46 (61.3%), median 16 (21.3%), LP 7 (9.3%) and PT 6 (8%) and 71 nerves (95%) were from reactional patients. Endoneural flow was observed in multiple nerves in 9 (17%) of 53 patients with type 1 and type 2 reaction. Significant correlation was observed between clinical parameters of grade of thickening, sensory loss and muscle weakness and the sonographic abnormalities of nerve echotexture, endoneural flow and cross-sectional area (p<0.0001) except between sensory loss and endoneural flow (p=0.0003).

Conclusion: We conclude that clinical examination of enlarged nerves in leprosy patients is subjective and inaccurate, whereas sonography provides an objective measure of nerve damage by showing increased vascularity, distorted echotexture and enlargement. The damage is sonographically more extensive and includes more nerves than clinically expected.

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Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Nerve Injury in Leprosy
Presenter: Masahiro Goto

EFFECT OF PREGABALIN ON THE CHRONIC NEUROPATHIC PAIN OF LEPROSY

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Introduction: In Japan, 27% of the individuals with cured leprosy suffer from chronic neuralgia (cross sectional study in 1995). They typically occur in cold environment and before rain, and relevant nerve trunks show mild pain on pressure. As they are not active neuritis, steroid is ineffective. NSAIDs and vitamin B12 have been used yet with limited effects. Pregabalin is a calcium channel alpha2deltaligand that is effective against neuropathic pain such as post-herpetic neuralgia and diabetic neuropathy by blocking the hyperexcitability of neurons in the spinal dorsal horn. Since post-herpetic neuralgia and chronic neuralgia in leprosy are both inflammatory neuropathies, pregabalin might be effective in the latter condition.

Methods: In 2011, we started to use pregabalin in our leprosy sanatorium with 199 residents. 21 patients with chronic neuralgia (13 males, 8 females, age 60-77, body weight 50-84 kg) have received pregabalin with mean daily dose of 60mg (25-150mg). Pretreatment renal function was estimated by estimated creatinine clearance (Clcr). 13% of the 12 patients were 60<Clcr, 56% received pregabalin with mean daily dose of 60mg (25-150mg). Endoneural flow was estimated by estimated creatinine clearance (Clcr). 13% of the 12 patients were 60<Clcr, 56% were 30<Clcr<60 and 31% were 5<Clcr<30.

Results: Improvement of pain was observed in 19 of 21 (90%) cases. The effect appeared with a few days after starting the administration, and loss of pain, decrease of pain, decrease of NSAIDs usage and better sleep were observed. Due to advanced age and impaired renal function, typically 25mg of pregabalin before bedtime was sufficient. Major adverse effects were wobble (67%) and dizziness (24%), and 39% of the patients could not continue the drug.

Conclusion: If the patients complain intractable pain of nerves once involved by leprous neuritis and the nerves are fibrosed, neuropathic pain should be considered. In such cases pregabalin could be an effective remedy.

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Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Les Progrès Récents
Presenter: Christian Johnson

SITUATION DE L'ENDÉMIE LÉPREUSE EN AFRIQUE : ÉVOLUTION ET DÉFIS

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Introduction: Grâce à l'introduction de la PCT en 1981, la lutte contre la lépre a enregistré d'énormes progrès dans la plupart des pays d'endémie. Mais si la prévalence globale de la maladie a connu une diminution spectaculaire de près de 90%, la détection des nouveaux cas a connu une diminution moins marquée car en 2000, 719 330 nouveaux cas de lépre étaient enregistrés. En 2010, le nombre de nouveaux cas rapportés par l'OMS est de 228474 nouveaux cas. L'objectif de cette présentation est d'analyser les informations relatives à la situation de l'endémie lépreuse en Afrique francophone en vue de dégager les principales évolutions ainsi que les défis majeurs.

Methods: Review and analyse critique des statistiques et des principaux indicateurs de la lutte anti lépreuse en Afrique.

Results: En 1994 les statistiques de l'OMS rapportent 47 900 nouveaux cas de lépre en Afrique. En 2010, ce nombre est de 25345 nouveaux cas. Le taux de détection a évolué passant de 8,1/100 000 habitants en 2000 à 3,3 à 13,0 000 habitants en 2010. La proportion des patients porteurs d'infirmité de degré 2 parmi les nouveaux cas était de 11% en 2000 contre 10% en 2010. Ces résultats globaux ne traduisent pas la disparité de la situation de l'endémie lépreuse entre les différents pays d'endémie. Cette disparité rend toute comparaison inter pays difficile. Dans beaucoup de pays d'Afrique francophone, la situation de l'endémie lépreuse reste contrastée car les statistiques rapportées par les ministères de la santé sont fortement influencées par les facteurs opérationnels ce qui pose le problème de leur fiabilité. Les systèmes de santé sont par ailleurs appelés à faire face à de nombreux défis et parfois, la lutte contre est souvent réduite au second plan. Dans ce contexte difficile, des défis importants doivent être relevés notamment le dépistage et la prise en charge correcte des nouveaux cas de lépre ainsi que des réactions pour lesquelles la prise en charge est très insuffisante; la mise en place de services de routine et de référence de qualité; le maintien d’une expertise lépre de qualité au niveau des pays d’endémie. Toutes ses actions doivent être soutenues par un plaidoyer efficace en vue de susciter l’engagement des administrations nationales et locales en faveur de la lutte anti lépreuse.

Conclusion: La stratégie mondiale renforcée pour réduire davantage la charge de la lépre pour la période 2011-2015 élaborée par l'OMS, en mettant l'accent sur les insuffisances 2 offre aux pays d'endémie en Afrique Francophone l'opportunité de renforcer la qualité de la détection et de la prise en charge au cœur des stratégies de lutte.
S. Michel 1, 1, J. C. Mugisha 1, 2, T. Ndikumana 3

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Results: Les signes qui ont inauguré la maladie étaient des lésions cutanées chez 27 patients (soit 71,7%), des troubles neurologiques chez 6 patients (soit 16,7%) et des lésions cutanées associées aux troubles neurologiques chez 5 patients (soit 10,4%). Chez les témoins, les lésions cutanées ont été évoquées dans 70 cas (soit 72,9%), les troubles neurologiques dans 16 cas (soit 16,7%) et des lésions cutanées associées aux troubles neurologiques dans 10 cas (soit 10,4%).

La consultation du patient avait été motivée par des conseils de l'entourage du patient dans 22 cas (soit 45,8%), l'initiative personnelle dans 17 cas (soit 35,4%) et la sensibilisation des acteurs de santé dans 8 cas (soit 16,5%) et les troubles neurologiques dans 16 cas (soit 16,7%) et des lésions cutanées associées aux troubles neurologiques chez 5 patients (soit 10,4%). Chez les témoins, les lésions cutanées ont été évoquées dans 70 cas (soit 72,9%), les troubles neurologiques dans 16 cas (soit 16,7%) et des lésions cutanées associées aux troubles neurologiques dans 10 cas (soit 10,4%).

Le nombre de communes au dessus du seuil de l’élimination de l’OMS est passé de 31 communes en 1995 à 5 communes en 2008. Les communes encore au dessus du seuil de l’élimination en 2008 se trouvent dans les départements de l’Ouémé/Plateau (Pobè : 2,21 cas pour 10 000 habitants et Kétou : 1,33 cas pour 10 000 habitants se situant au niveau du Plateau), du Zou/Collines (Agbangnizoun se situant dans le Zou avec une prévalence de 4,77 cas pour 10 000 habitants) et d’Alacora/Donga (Boukombou : 1,20 cas pour 10 000 habitants et Cobly : 1,04 cas pour 10 000 habitants se situant dans l’Alacora). Il est à signaler que toutes ces communes précitées étaient également au dessus du seuil de l’élimination en 1995.

Conclusion: The PIRP is now an integrated strategy of the NLP, but this integration is unfortunately limited at the moment due to weak capabilities of health workers to ensure a neurological assessment, but the large territory would require an extension of this program.

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Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Les Progrès Récents
Presenter: Michel Sawadogo

MOTIVATIONS À CONSULTER CHEZ LES MALADES SOUFFRANTS DE LA LÉPRE ET LEUR SUIVI AU BURUNDI

Introduction: Une étude a été conduite au Burundi en vue d’évaluer le devenir des patients chez qui une chirurgie réparatrice avait été effectuée du 1er janvier 2008 au 30 décembre 2010 avec pour objectifs d’apprécier l’utilité et les bénéfices de l’intervention pour le patient et son entourage, d’analyser la perception des patients et de leur entourage sur la lépre et la chirurgie réparatrice et de recueillir les suggestions des enquêtés.

Methods: Il s’agit d’une étude transversale à visée descriptive. Une étude cas témoins a été née de façon à apprécier la différence entre les patients opérés (cas) et les autres lépreux non opérés (témoins). L’étude s’est déroulée essentiellement dans les 5 provinces encore endémiques du Burundi dans les Hôpitaux de références et des centres de santé (CDS) choisis selon la provenance des malades opérés. Un questionnaire a permis de recueillir des informations sur le diagnostic et le suivi.

Results: La lutte contre la lépre constitue encore un défi pour le Burundi. Le diagnostic était inconnu dans 66 cas (soit 68,75%) et connu dans 30 cas (soit 31,25%): un voisin dans 20 l’initiative personnelle dans 17 cas (soit 35,4%) et la sensibilisation des acteurs de santé dans 8 cas (soit 16,7%) et les autorités de l’école chez 1 patient (soit 2,1%). Chez les patients, les lésions cutanées ont été évoquées dans 70 cas (soit 72,9%), les troubles neurologiques dans 16 cas (soit 16,7%) et des lésions cutanées associées aux troubles neurologiques chez 5 patients (soit 10,4%). Chez les témoins, les lésions cutanées ont été évoquées dans 70 cas (soit 72,9%), les troubles neurologiques dans 16 cas (soit 16,7%) et des lésions cutanées associées aux troubles neurologiques dans 10 cas (soit 10,4%).

Conclusion: Leprae et de Burundi dans les Hôpitaux de références et des centres de santé (CDS) choisis selon la provenance des malades opérés. Un questionnaire a permis de recueillir des informations sur le diagnostic

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Presentation Time: Wednesday 18/09/2013 at 14:00 – 15:30
Symposium Session: Les Progrès Récents
Presenter: Dr Andrianantoandro

PIRP : IMPLEMENTING A NATIONAL STRATEGY FOR PREVENTION OF DISABILITIES AND PHYSICAL REHABILITATION OF LEPROSY IN MADAGASCAR.

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Introduction: With 1500 new cases detected per year, leprosy remains a significant problem in Madagascar. However, the detection of residual cases is difficult and the degree of disability among new cases is important (20%). Therefore, the implementation of a Prevention of Disabilities and Physical Rehabilitation Programme (“PIRP”) has become a priority of the National Leprosy Programme. PIRP includes primary prevention (early detection, MDT, detection and therapy of the nerve damage) and also secondary prevention (physical rehabilitation).

Methods: Due to the few number of leprosy patients health workers treat, they now have difficulties to maintain their skills. Therefore, implementation of the program has been done in two steps: first a pilot approach based on the availability of experienced Health Centres, and then a second step aiming at national coverage. This strategy involves three levels in the health pyramid. Basic Health Centres are responsible for the diagnosis and monitoring of treatment; The First Level Orientation Centres (COR1 in French) confirm the diagnosis, then start MDT, assess the nerve function and implement an ambulatory standardized corticotherapy protocol if necessary; The second Level Orientation Centres (called COR2) can hospitalize patients for more appropriate treatment for severe neuritis, plantar ulcer care, minor surgery, physiotherapy and prosthesis.

Results: The first step, originally relied on the COR2 as “centres of excellence” with strong activity, technical expertise and logistic resource, and are often run by private confessionnal operators. Furthermore, around each COR2, General Basic Health Centres were designed to be COR1. Implementation required:

• Awareness of leprosy and “IPRP”, for population and medical staff;
• Training for neurological diagnosis at COR 1 and COR2 level with support from the National Programme Team. (A major focus was to develop steroid therapy as an alternative to surgical decompression in places they were undertaken as a “routine” response to neuritis);
• Implementing logistics necessary for therapy, nutritional support and social rehabilitation;
• Investment in structure and housing including availability of shoe shops;
• Monitoring and evaluation with external expertise.

Conclusion: Leprae and of successful corticotherapy; • More than 600 pairs of shoes are made and repaired every year. Madagascar’s Motor Rehabilitation Centre has been identified as a national reference for leprosy palliative surgery interventions where surgeons are trained and supervised.

To be improved: • Referral of patients from COR 1 to COR 2 remains insufficient; the system relies on an auto referral of patients according to the notoriety of the COR2.

Conclusion: The PIRP is now an integrated strategy of the NLP, but this integration is unfortunately limited at the moment due to weak capabilities of health workers to ensure a neurological assessment, but the large territory would require an extension of this program.
ROLE OF DERMATOLOGISTS IN LEPROSY CONTROL

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Introduction: Leprosy control programs, including multi-drug therapy for leprosy, have undergone significant changes over the last few years. With the process of integration of leprosy into general health services, dermatologists are more responsible for the care of leprosy patients than ever before. The dermatological services will continue to play an important role in diagnosis of the incident and remaining leprosy cases worldwide. The 7th WHO Expert Committee on Leprosy mentioned the need for assigning a role to dermatologists for the elimination of leprosy. It stresses the need to include leprosy as a part of the curriculum of dermatology and to encourage dermatologists in ensuring that standard WHO MDT regimens are implemented and new cases are reported. Integration is considered more cost effective and feasible within national resources, thereby ensuring sustainability of leprosy services. Although experiences are diverse, several countries have shown that such integration is feasible and effective. In the changing scenario, when role of allied medical and surgical specialists like neurologists, ophthalmologists, physiotherapists, plastic surgeons, and even pathologists is being increasingly recognized, contributions of dermatologists can not be underestimated. Traditionally dermatologists have been involved in imparting clinical skills and training about leprosy to health care providers. Their role is even more pertinent in current scenario when leprosy is diagnosed based on skin lesions alone. The integration of leprosy into mainstream services offers opportunities for developing improved links between dermatologists and central leprosy clinics and regional health authorities. Sufficient interest, skills and experience should be generated and maintained among general health services staff to deal adequately with varied aspects of leprosy. Leprosy programmes could become more effective by involving dermatologists in training for examination of skin lesions, impart knowledge on leprosy mimicking common dermatoses, neurological assessment, recognition of earliest signs of reaction, providing monofilament evaluation, physiotherapy, and footware for patients with established nerve damage. Frequent dermatological training workshops will be essential to ensure that leprosy is not taken as a ‘forgotten disease’ and to sustain the knowledge and skills for early diagnosis and treatment of leprosy till disease is pushed to its last verge from the world.

Methods: not applicable

Results: not applicable

Conclusion: not applicable

WIDENING THE FOCUS OF AN EXCLUSIVE LEPROSY REFERRAL CENTRE TO INCLUDE GENERAL DERMATOLOGY : A NEW WAY TO IMPROVE LEPROSY CASE DETECTION. EXPERIENCES FROM NEW DELHI, INDIA

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Introduction: Leprosy most often manifests primarily as a skin condition such as a pale anaesthetic patch, with patients reporting to a dermatologist for treatment. It is a great mimicker, often resembling psoriasis and fungal infection. At times it is a challenge even for an experienced dermatologist to make a diagnosis. The Leprosy Mission Community Hospital New Delhi, established in the year 1984, started as a small urban Multi Drug Therapy drug delivery point; later grew into exclusive leprosy referral hospital. Now in response to the needs of the community surrounding it, it is transformed into a community hospital attracting general dermatological cases

Methods: This is an observational, retrospective study in which consolidated data from all patients reporting for dermatological conditions during 3 years from 2010 to 2012 were extracted from the Hospital Information System of TLM Community hospital and analysed.

The new cases of leprosy with obvious cutaneous signs and those leprosy suspects reporting to the OPD had been meticulously subjected to thorough physical examination. This constituted screening and examination for patches and nerve involvement, slight skin smears, Voluntary Muscle Testing, and Histopathological examination for those without adequate demonstrable cutaneous signs. Women counsellors / staff nurses helped to screen female patients when needed.

PRESENTATIONS

ORAL PRESENTATIONS

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Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30

Symposium Session: ENL Reaction 2 and Dermatology

Presenter: Sunil Dogra

Results: The total number of patients with dermatological conditions reporting to the hospital during the 3 year period (2010-12) was 82,012. The common dermatological conditions diagnosed were 15,380 (19%) cases of Acne vulgaris; 12, 222 (15%) cases with Vitiligo; 11,484 (14%) with Eczema; 10,515 (13%) with fungal infections; 7,316 (9%) with Psoriasis; 5,800 (7%) with seborrhoic dermatitis; 4,892 (6%) with Urticaria; 2,474 (4%) with scabies; 3,025 (4%) with Miliaria; 2,180 (2.5%) with cellulitis, abcesses & ulcers; 1,955 (2%) with Aloppecia; and 1,347 (1.5%) with warts and 2,415 (3%) with Leprosy. In 2012, there was 15% rise in new leprosy cases reported on comparing the 5 year average (2008-12), 199 rise on comparing that with of 2011.

Conclusion: In the post integration era transformation of an exclusive leprosy referral hospital into community hospital, expanded areas of services which led to increase in detection of new leprosy cases compared to previous years. Many leprosy cases, especially those which were difficult to diagnose or mimicking various dermatological conditions were detected. Quality time is needed to certify somebody free from leprosy; hence it is a task for the health care team to methodically screen and pick leprosy cases from various general skin conditions. Widening the skills of the OPD team (comprising of counsellors, physiotherapists, doctors, lab technicins, and nurses) to see a variety of skin conditions has helped to sharpen their skills, thereby differentiating and diagnosing leprosy cases more confidently. There is also a significant reduction in stigma as general patients report in large numbers to an erstwhile leprosy hospital.

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Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30

Symposium Session: ENL Reaction 2 and Dermatology

Presenter: Saba Lambert

RCT ASSESSING CICLOSPORIN IN ENL REACTION TREATMENT. IN ETHIOPIA

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Introduction: Erythema Nodosum Leprosum reactions are a significant complication of lepromatous leprosy. High dose and long term immunosuppression with corticosteroids is often required to treat ENL, causing significant morbidity in patients. An alternative treatment approach is urgently needed. Ciclosporin, a potent immunosuppressant, has been used successfully in a few informal patient series. We assessed Ciclosporin systemically for safety, tolerability and efficacy in ENL.

Methods: A double blind controlled pilot study randomizing patients with new acute or recurrent ENL to treatment either with Ciclosporin/prednisolone combination or Prednisolone alone. Treatment period was 16 weeks and final follow up at 32 weeks. Clinical response through ENL symptoms and signs, nerve function and additional treatments were measured as well as recording adverse events, haematological, renal and hepatic functions and quality of life. Outcome measures were: time to control of ENL; time to relapse of ENL after initial control; number and severity of ENL relapse episodes; amount of extra prednisolone needed to control symptoms and frequency and type of adverse events.

Results: The study was completed in January 2013 and data is being analysed. 32 eligible patients were recruited and 28 completed the study successfully. One serious adverse event was the death of patient treated with only prednisolone. Data on the frequency and severity of ENL episodes and adverse events in the two groups will be presented.

Conclusion: Ciclosporin has not been associated significant adverse events and it is a promising safe second line steroid sparing drug in the management of complicated ENL.

Funded by: Homes and Hospitals of St Giles

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Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30

Symposium Session: ENL Reaction 2 and Dermatology

Presenter: Stephen Walker

ENLIST – THE FORMATION AND AIMS OF THE ENL INTERNATIONAL STUDY GROUP

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Introduction: Erythema nodosum leprosum (ENL) is accompanied by significant disease-associated and iatrogenic morbidity and mortality. There is increasing recognition of this amongst leprosy researchers but little published data exists to support attempts to draw wider recognition from international agencies, national leprosy programmes and research funding bodies. The Erythema Nodosum Leprosum International Study (ENLIST) Group was formed in 2012 following a workshop on ENL. The purpose of the workshop was to bring together leprosy workers interested in improving the understanding of and outcomes in ENL.
Methods: The workshop on ENL took place at in Cebu City, Philippines in early 2012. It was organized by the Leprosy Missions, the Leonard Wood Memorial Center for Leprosy Research and the Leprosy Group at the London School of Hygiene and Tropical Medicine. 28 scientists and clinicians from a variety of disciplines and organisations attended. Thirty countries in Asia, the Americas, Australasia, Africa and Europe were represented. The aims of the workshop were to critically review the published evidence on treatment of ENL, identify research topics which could improve patient outcomes, identify studies needed to improve the understanding of the pathogenesis of ENL, highlight improvements in the design of future clinical trials of treatments for ENL and to develop an ENL research network.

Results: It was agreed at the workshop that there is a pressing need to identify affordable and effective treatments of ENL to improve outcomes for patients who only have access to prednisolone or in whom thalidomide is contraindicated. Thalidomide is an effective drug in managing many aspects of ENL but is not widely available in many leprosy endemic countries due to teratogenicity. The effectiveness of thalidomide in the management of ENL associated neuritis is unclear and it may even cause peripheral neuropathy. Thalidomide has other adverse effects (particularly in the doses required in the initial management of ENL) and consequently some patients are unable to take it. A better understanding of the natural history of ENL is needed in order to assess treatments and determine prognosis for patients. Studies are required to improve understanding of ENL pathogenesis, to identify predictors of ENL and facilitate ENL monitoring. The group agreed to collect prospective data on the clinical features of ENL. The objectives of this exercise are to describe the clinical features and natural history of ENL, determine current management practices and features of severity.

Conclusion: The Erythema Nodosum Leprosum International Study (ENLIST) Group aims to improve the understanding of the mechanisms which cause erythema nodosum leprosum (ENL), improve the evidence to guide treatment decisions of individuals with ENL and improve access to effective treatments. The members of the ENLIST Group are seeking funding for collaborative ENL-related research but despite the fact that no funding has yet been secured the initial data collection project to prospectively describe the clinical features of ENL has started in Brazil, Ethiopia, India, Nepal, the Philippines and the UK thanks to the enthusiasm of the members of the ENLIST Group and the participation of the patients at the various centres. We welcome interest from leprosy researchers wishing to find out more about the ENLIST Group.

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Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session: ENL Reaction 2 and Dermatology
Presenter: Irmadita Citrashanty

SERUM TNF-α AND CORTISOL IN VARIOUS SEVERITY SCALE OF ERYTHEMA NODOSUM LEPROSUM TREATED WITH CORTICOSTEROID

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Introduction: Nowadays leprosy remain as a problematic issue in Indonesia. New case findings are dominated by multibacillary (MB). Nevertheless, MB patients tend to develop reaction before, within or mostly after treated with Multi Drug Therapy (MDT). In bordetel pneumonia (BL) and lepromatous leprosy (LL) type, type 2 reaction or Erythema Nodosum Leprosum (ENL) commonly occur. The characteristic of ENL is the high secretion of pro-inflammatory cytokines TNF-α, IL-1, IL-6, IL-8, IL-10, and also supported by the production of Th-2 cytokines IL-4 and IL-5. Previous studies have shown that the increasing of TNF-α is proportionate to its reaction severity, thus TNF-α is stated as a sero-marker of ENL. TNF-α is also mentioned as a primary cytokine which has a pleitropic effect, so that it can induce the release of many other cytokines. The secretion of adenosinetriphosphate (ACTH) is habitually increased due to the release of inflammatory cytokines, thus ACTH will induce the release of adrenal glucocorticoid as a negative feed back mechanism of action. Regardless this theory, if this cytokines stimulate occur in high level and chronically exposing, adrenal cortex will suffer from exhaustion so that it is resistant to further stimulus and will decrease the serum corticosteroid. Corticosteroid is commonly admitted to treat medium to severe ENL, since anti TNF-α is strictly prohibited in Indonesia. Highly problematic issue in treating ENL with corticosteroid is due to its side effects and recurrence. It is mentioned that cortisol less than 10 µg/dL is a state of adrenal insufficiency, so that exogenous corticosteroid should be applied. Objective of this study is to measure serum TNF-α and cortisol, based on the varying severity scale of ENL which is determined with scoring system of Reaction Severity Scale (RSS).

Methods: Twenty-one MB patients with ENL suffer from deterioration during the tapering off of corticosteroid were included in this study. These patients did not suffer from diabetes, tuberculosis nor other chronic infection. Subject were also not pregnant and not consuming hormonal therapy. All the subjects were taken blood samples on 8-9 am for the measurement of serum TNF-α and cortisol. They were also clinically examined to determine the reaction severity, using RSA.

Results: Most of subjects in this study suffered from ENL with severe severity scale, which is 9 (42,9%) from 21 patients. Mean TNF-α in mild ENL severity scale is 3,033 (SD 0,3) µg/mL, in moderate ENL severity scale is 11,75 (SD 0,7) µg/mL, and in severe ENL severity scale is 9,32 (SD 5,2) µg/mL. Mean serum cortisol in normal range of serum TNF-α (0,550 – 2,816 g/mL) is 1,25 µg/dL, in high level of TNF-α (> 2,816 – 5,90 g/mL) is 7,14 (SD 6,0) µg/dL, and in very high level of TNF-α (> 6,0) is 12,15 (SD 4,9) µg/dL.

Conclusion: These findings suggested that ENL severity scale tends to increase concordance to the escalating of serum TNF-α. Cortisol level also increased with the escalating of serum TNF-α. ENL patients in this study tend to have a low serum cortisol which lead to a condition of adrenal insufficiency. Adrenal insufficiency in ENL patients treated with corticosteroid might occur due to chronic exposure of pro inflammatory cytokines and long term of exogenous corticosteroid. Further research is required to confirm this phenomenon.

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Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session: ENL Reaction 2 and Dermatology
Presenter: Irmadita Citrashanty

A RANDOMIZED, DOUBLE-BLIND, PLACEBO CONTROLLED PROSPECTIVE TRIAL ON THE EFFECT OF EXTENDED CLOFAZIMINE ON ENL IN MB LEPROSY- AN INTERIM REPORT

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Introduction: Since 1998, the recommended treatment duration of WHO-Multidrug therapy (MDT) for MB leprosy has been reduced to 12 months. Since then, an increasing occurrence of erythema nodosum leprosum (ENL) among patients with high bacteriologic index (BI) has been noted. However, no scientifically designed trial has been conducted to support this observation. We hypothesize that this observation could be due to the shortened coverage of clofazimine which is believed to have an anti-inflammatory effect suppressing ENL. This study was designed to evaluate the effect of an additional period of Clofazimine after 12 months of MDT, on the occurrence and severity of ENL in MB patients.

Methods: With the approval of an LWM Ethical Regulatory Committee, newly diagnosed, high BI (> 4+) patients who consented to the study were recruited. Patients were randomly allocated to two drug regimens; Regimen A consisted of One-Year MDT +Clofazimine 100mg daily for 12 months; Regimen B consisted of One-Year MDT + placebo daily for 12 months. During and after treatment, the occurrence and severity of ENL was carefully monitored. The total observation period was 2 years from MDT completion. Mild ENL was considered if there were less than 20 papulonodules without systemic signs and symptoms; moderate ENL was considered if there were more than 20 papulonodules and/or constitutional symptoms, joint pains, edema, nerve involvement, ulceration,etc. Severe ENL was considered if there was a prolonged (> 20 weeks) or recurrent episode of moderate ENL.

For this interim report, to maintain blinding, a clinical monitor not directly involved in patient evaluation will provide an updated, statistically analyzed data in accordance with treatment regimens patients are assigned.

Results: A total of 82 LL patients were recruited. However, because the study is still in progress, only the first 40 recruits who completed the extended regimen will be included in the discussion. Of the 40 cases, Regimen A enrolled 20 patients, mean ABI is 4.64; 7 (35%) experienced ENL with 4 (57 %) having the more severe type; total prednisone intake for all ENL cases was 23.2 g with a mean of 3.31g (range: 0.21 -7.18 g) Regimen B enrolled 20 patients, mean ABI is 4.59; 7 (35 %) experienced ENL with 5 (71%) having the more severe type, total prednisone intake for all cases was 29.73g with a mean of 4.25g (range:0.5-8.49g). Thus far, no significant adverse events related to drug intake were noted.

The rest of the patients will complete the regimen over the next few months so that more data (about 70 cases) will then be available for the congress presentation.

Conclusion: Although the study is still in progress, early findings suggest that an extended period of clofazimine does not necessarily prevent the occurrence of ENL but may reduce ENL severity and steroid requirement in a relatively small number of high risk patients. As more data are collected, further analysis is required to confirm this tentative finding.
The History of Leprosy in Colombia and the Family’s Perception of its Stigma

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2Astrakhan Medical Academy, Astrakhan, Russian Federation

Introduction: In Colombia, leprosy has existed for the past 500 years. At the beginning of the 20th century, my grandparents and my mother were confined to the leprosaria at Cartagena and Agua de Dios. They were directly affected by the disease and separated from their families, isolated from society and forced to live in a place very similar to a concentration camp. This inhumane condition left our family with deep emotional scars difficult to erase. Other members of my family such as uncles and cousins also developed the illness. I am the third of five children and was born in Agua de Dios.

Methods: As the history of leprosy in the world is recorded, it is very important for the children of people who have had leprosy to know and understand this history and participate in its interpretation. For this reason, I have researched this history, am involved with the Museum at Agua de Dios and have also conducted oral history with my mother.

Results: The first outbreak of leprosy started in Cartagena, the port of entry for all conquistadors and slaves. Between the years 1610 and 1640, the “San Lazaro Hospital” was built and became the first leprosarium in Latin America. By 1791, people affected by the illness were isolated from society and forced to be transferred to the island of “Tierra Bomba” at a place called “Cano del Loro”. As time went by, there were outbreaks of the illness in different regions of the country, so in 1833 the Colombian government mandated the reorganization of the leprosarium. By this time, leprosy began to evolve as a very serious public health problem. People began to openly reject persons with the disease and they were cruelly persecuted. As a result, the Government passed a decree in September, 1861, which ordered the creation of the leprosarium called “Lazareto de Contratacion” in the department of Santander. With the decree of Law 6 of 1864, the “Leprosarium of Agua De Dios” in the department of Cordo-enariva was created. In parallel with this administrative process, the Government bought a land site named “Agua De Dios e Ibanez”, title deed No. 114 of January 22, 1867. Therefore, Colombia ended up with three leprosaria which saved the country from economic and social chaos resulting from fear of contagion. In September, 1992, the Government ordered the transfer of all of the residents of “Cano del Loro” to “Agua de Dios” and later on “Cano del Loro” was bombarded for five consecutive days by the government air forces to make sure it was totally wiped out. On December 25, 1961, Law 148 ordered the establishment of the municipalities of Agua de Dios and Contratacion. After a long struggle by people affected by leprosy to recover their social and civil rights, this decree by the Government finally put an end to the leprosaria’s condition of being a place of banishment. Agua de Dios has been home to farmers, craftsman, writers, journalists, musicians, painters, all of whom have left their cultural legacy in Agua de Dios.

Conclusion: Today, Agua de Dios is an oasis of peacefulness and tranquility. It is a free community of friendly people, cheerful and proud who have managed to endure all types of injustices. They have overcome discrimination, sadness and confinement due to the fear of contagion, the ignorance of society and mistakes made by medical scientists. Living with my mother and the community of Agua de Dios has offered me the opportunity to understand the importance of knowing our history, accepting it, and amending our errors in order to be able to ensure a better future.

New Perspectives on Kalapa\'paka’s History as Reflected in Hundreds of Letters, Petitions and Newspaper Articles Translated from Hawaiian to English

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Introduction: Between 1866 and 1969, an estimated 8,000 individuals – at least 90 percent of whom were Native Hawaiians – were sent to Molokai’s remote Makanalua peninsula, commonly known as Kalaupapa, because they were believed to have leprosy. The history of Kalaupapa has been told and re-told hundreds of times, however traditional histories have been based exclusively on English-language sources. The people sent to Kalaupapa have often been described as “lawless and immoral” and the passive recipients of charity rather than important contributors to this history. The overall history has been primarily characterized as one of rejection and shame.

Methods: More than 350 letters and petitions written in the 19th century were translated from Hawaiian to English. Most of the original documents are located in the Hawaiian State Archives in Honolulu. These include letters to the Board of Health from the earliest residents of Kalapa\'paka, some of which are from the first group of 12 individuals sent there on January 6, 1866. Also translated were petitions to the Hawaiian Legislature, also located in the Archives. Numerous letters written to the Hawaiian government by residents can be found on-line and many of these were also translated. Chants, poetry and songs composed by the people of Kalapa\'paka have also been translated.

Results: Letters and petitions translated from Hawaiian show that the individuals sent to Kalapa\'paka were from many backgrounds. They were lawyers, teachers, judges, ministers, composers, musicians, and members of the Legislature. They were also mothers, fathers, daughters, sons, grandparents, brothers and sisters. Throughout the translations, there is a consistent theme of love, shown in numerous requests to have family members accompany a relative to Kalapa\'paka as a kouka (helper). The shame associated with leprosy, so prevalent in Western histories, is not reflected in the 19th century Hawaiian cultural response to this disease. The translations also reveal an expectation of justice on the part of those individuals sent to Kalapa\'paka. They insisted that since they had been taken from their families, it was the duty of the Board of Health to see that they were properly fed and cared for. Otherwise they should be returned home to be cared for by those who loved them. Their writings showed that they established a church within the first six months of the settlement’s existence and created a community structure where they sought to assist those who chose to stay at being taken from home and family and would lead to behaviors that hurt themselves and others. Poetry, musical compositions, letters to Queen Liliuokalani and signatures on the Petition Against Annexation by the United States also reveal that being sent to Kalapa\'paka did not mean that individuals gave up their support of their Queen or their interest in preserving the Hawaiian Kingdom.

History of the Development of Anticontagionism in Leprosy in Russia

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Introduction: Recent years are marked with great attention to the questions of history of leprosy (LLA Global Project on the History of Leprosy), including the development of opposition between contagionists and anticontagionists in leprosy in different countries in the XIXth century (S.S.Pandya, 1998 and others). This investigation is aimed at addition to historical knowledge and knowing our history, accepting it, and amending our errors in order to be able to ensure a better community of friendly people, cheerful and proud who have managed to endure all types of injustices. They

Methods: Study of publications and archive documents on leprosy dating from the XVIIIth and XIXth centuries.
Conclusion: Translation of Hawaiian language sources adds a completely different perspective to the history of Kalaupapa. They do not reflect shame but rather the belief that great love was always more important than fear. The Hawaiian language sources also reveal that the people sent to Kalaupapa were unwilling to simply accept the loss of their families, homes, and citizenship. They sought justice in a situation they felt to be unjust. They left a powerful testimony of their lives in the form of letters, petitions, music, memoirs, and oral history interviews and, in so doing, the people of Kalaupapa have ensured that they will be accorded their rightful place in their own history.

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Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session: History of Leprosy 2
Presenter: Kathleen Vongsathorn
UNTANGLING LEPROSY: UGANDANS, BRITONS, AND SHIFTING ATTITUDES TOWARDS LEPROSY IN TWENTIETH-CENTURY UGANDA

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Introduction: Throughout the course of Christian history, leprosy has been considered as a disease apart from all diseases, bound in a long tradition of myth and stigmatisation. For the last several decades, scholars have offered various explanations as to why leprosy has inspired a fear that is out of proportion with its low rates of morbidity and lower rates of mortality.

Methods: In this paper, I will draw on my doctoral research, which examined the role of missionaries, the colonial government, and leprosy patients in the formation of leprosy settlements in colonial Uganda, to analyse the motivations for the fear and acceptance of leprosy among the Bakiga of southwest Uganda in the mid-twentieth century; to contradict the popular myth that the stigmatisation of leprosy patients was universal; and to offer a culturally specific examination of the factors that led to a growing fear of leprosy in Uganda. Further, I will examine the ways that the preconceptions that British missionaries had about leprosy, and the way that they applied those preconceptions to the treatment of leprosy in Uganda, changed the way that Ugandans thought about leprosy, and the way that leprosy patients perceived their own identity.

Results: Before contact with Christian missionaries, the Bakiga accepted leprosy suffers as victims of vengeful ancestral spirits, except in some cases of extreme physical disability. It was only when British, Anglican missionaries from the Church Missionary Society began treating leprosy in Uganda in the 1900s, that fear of the contagion of leprosy and the isolation of its sufferers grew among the Bakiga. When these missionaries arrived in Uganda, they carried with them mythical ideas about the ostracism and isolation levied upon ‘lepers’ in the Biblical and medieval times. Presuming that Ugandan leprosy sufferers endured the same trials as past ‘lepers’, the Bakiga were surprised to have done, mission doctors and nurses attempted to save them, and thus travelled around southwest Uganda to seek out leprosy sufferers, and brought them to a single, geographically isolated island settlement.

Conclusion: However, instead of decreasing the emotional suffering of Bakiga leprosy patients, missionary actions unconsciously led to an increase in the stigma and isolation of leprosy victims. This, in combination with the role that the missionaries expected of their leprosy patients, as ‘civilised’ African ‘lepers’, whose joy in Christianity outweighed the physical suffering that they endured, meant that sufferers of leprosy in Bakiga had to negotiate a new identity for themselves, which drew not only on their own heritage, but also a Biblical and medieval European heritage.

O-173
Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session: History of Leprosy 2
Presenter: William McCoy
WE ARE THROWN AWAY: THE LANGUAGE OF LEPROSY AND THE FOUNDING OF SWAZILAND’S NCABANEPI LEPROSY SETTLEMENT

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Introduction: The Ncabaneni leprosy settlement in the small British colony of Swaziland existed only for a short period of time between 1934 and 1948; indeed, it was never meant to be a formal part of the strategy of the British colonial government for dealing with leprosy. But the story of its founding, and particularly the role of Madolwane Maziya, a Swazi woman suffering from leprosy, reveals the ways in which Swazi leprosy patients advocated for themselves and refused to be defined solely by the stigmas and stereotypes of Western outsiders.

Methods: This paper employs historical methodologies of archival research, complemented by oral testimony, collected during a 7 month field research visit to Swaziland in 2010. It leans most heavily on a collection of letters written over a two year period between Madolwane Maziya, a Swazi leprosy patient living in South Africa’s Westfort Leprosy Hospital, and various officers of Swaziland’s colonial government. These letters and many of the other materials in the paper are housed in the Swaziland National Archives, but they are also supplemented by additional archival materials housed at Swaziland’s Raleigh Fitkin Memorial Hospital and mission archives in the United States, as well as oral interviews conducted in Swaziland and the United States. Its theoretical framework is constructed along the lines of models employed by social historians and in microhistory, in that it derives larger conclusions and themes from the story of one particular incident centered around the lives of ordinary people.

Results: The paper argues that it was precisely the persuasive letter writing campaign of Madolwane Maziya and her fellow Swazi leprosy patients at Westfort that compelled the colonial government in Swaziland to respond to their needs by creating the Ncabaneni settlement. Maziya did so by offering point by point rebuttals of arguments made by the colonial government protesting their inability to aid these patients, arguments that were clearly rooted in erroneous Western stigmas about leprosy patients as debilitated victims of their disease and serious dangers to public health.

Conclusion: Contrasting Maziya’s language about leprosy with that of colonial officials as well as Christian missionaries living in Swaziland at the time demonstrates the reality that her lived experience of the illness gave her knowledge of her condition that was at least the equivalent of what the best scientific assessments of the time period could offer. The story of Ncabaneni illustrates the agency of leprosy patients in advocating for themselves as human beings who can not be defined only by a medical condition.
Introduction: In the last decade, new tools have been developed for genotyping Mycobacterium leprae, that add to definition to the lineage level (SNPs) and to the strain level (Tandem Repeats). This kind of tool allows both evaluation of geographic distribution of major genetic groups and aids to track transmission routes, re-infection and drug resistance.

Methods: We performed a case-control study for better understanding of the clinical and epidemiological characteristics of leprosy in the city of Fortaleza, the capital of Ceara, a state in the Northeast region of Brazil with a high incidence of leprosy. A prospective study was designed with a detailed epidemiological questionnaire and georeference from all new cases reported at the Reference Center on Dermatology D. Libiana in Fortaleza, and nasal swab and a skin biopsy was collected for genotyping of M. leprae. At Fiocruz, Rio de Janeiro, automated MLVA of eleven microsatellites including AT17, GGT5, GTA9, AC8b, AC8a, AT15, A9, TTC21, TA18 and TA10 and six mini-satelites 6.7, 27.5, 23.3, 21.8 and 12.5.

Results: During a one year period, 419 leprosy cases and 231 controls were included evaluated and we received biopsy samples from 160 MB cases of which 159 gave complete genotypes. When using the highest stringency for definition of clusters (all 16 markers identical copy numbers), we observed three clusters that included cases from three patients, rendering an index of M. leprae of 3.8%. However, comparison of the genotypes of M. leprae isolates from biopsy samples with those from nasal swabs demonstrated that four of the loci (AT17, AT15, TA18 and TTC22) gave different copy number in a considerable number of cases. We therefore lowered stringency of definition of cluster by excluding these four markers and under such conditions, we observed 96 cases in cluster (60-49), including two large ones with respectively 23 and 19 isolates, one of six, two of five, one of four, six of three and eight of two isolates. After performing a PCA analysis of clinical/epidemiological data of cases versus having clustered or non-clustered isolates, we observed a tendency of for clustered cases having larger time periods between diagnosis and notification and, surprisingly, an inverse relation with having lived in the same house. In addition, a significant association (p < 0.05) was observed between working together or being BAAR positive with clustering.

Conclusion: This is the first molecular epidemiology study with such a high coverage of new cases being investigated by genotyping of M. leprae with detailed epidemiologic and clinical data available for definition of risk factors for transmission of disease in Fortaleza. We present preliminary data on association of patient characteristics and clustered parasite genotype and the strong influence of stringency of cluster definition on the number of cases with identical genotypes. The presence of two groups of about 20 cases with identical cases is highly suggestive of some two dominating M. leprae strains in Fortaleza but more analysis is needed to define better the relation between genotype and strain definition. We are currently evaluating the possible relations between cases in individual clusters and analyzing localization of the genotypes within the city using Google maps.

Whole Genome Sequencing of Mycobacterium Leprae Strains Directly from Leprosy Skin Biopsies

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Introduction: Comparative genomics of Mycobacterium leprae strains from different regions is a valuable tool in refining our understanding of phylogeography and evolution of leprosy. Such an approach at the genome level is much more informative in comparison to currently practiced PCR based approaches that provide limited information but require significant amount of M. leprae genomic DNA. As leprosy bacilli still remains uncultivated in vitro, purified M. leprae DNA is a very scarce resource in itself. Recent advances in the sample preparation methods for the whole genome sequencing has made it possible to utilize nanogram amounts of DNA for sequencing microbial genomes. However, target DNA needs to be sufficiently free of the contaminating host DNA. With this as the key objective of our present study, an array based enrichment of M. leprae DNA was followed by whole genome re-sequencing directly from skin biopsies.

Methods: A DNA capture array with 60 bp oligonucleotide probes spanning the entire M. leprae TN reference genome was designed with a tiling density of 4 bases. We selected 12 worldwide strains for DNA capture represent the SNP genotypes of M. leprae that are so far not represented in any consensus studies. The immunoprecipitated DNA was prepared using DNA that was directly extracted from skin biopsies of leprosy patients. After hybridization capture on the array, the enriched libraries were sequenced using Illumina sequencing platform.

Results: Upon aligning the reads onto the M. leprae TN reference genome, 6 strains could yield over 15X average coverage of over 85% of the TN genome. This comparison revealed fewer than 700 SNPs with no structural variations or big insertions/deletions. This further confirms the exceptional stability of M. leprae genome, making it ideal candidate for re-sequencing projects and mapping. Genome typing of M. leprae strains in present study also revealed three additional pseudogenes due to premature stop codons mediated by SNPs. Two strains also exhibited Dapsone resistance mutation (Thr318Le) in their 16S rRNA.

Conclusion: This approach provided comprehensive information about phylogeny and evolutionary dynamics of M. leprae strains. Greater representation of diverse strains for genome wide comparison, as carried out in the present study, would further help in refining the existing molecular epidemiological assays. Successful use of the array capture approach directly on the clinical specimens suggests that wherever feasible, the existing PCR-based genotyping and molecular drug susceptibility assays should be replaced by genome typing, as the later approach provides deeper insights into the biology and evolution of M. leprae.
O-179
Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session: Molecular Biology 2
Presenter: Ravindra Turankar

REVERSE TRANSCRIPTION-PCR BASED DETECTION OF VIABLE M. LEPROE FROM ENVIRONMENTAL SAMPLES IN THE INHABITANT AREAS OF ACTIVE LEPROSY CASES: A CROSS SECTIONAL STUDY FROM ENDEMIC POCKETS OF PURULIA, WEST BENGAL

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Introduction: Leprosy is a chronic infectious disease caused by Mycobacterium leprae. M. leprae being an obligate intracellular parasite cannot be cultured in any artificial culture media but it has been shown to reside in wild armadillos in North America. Many studies suggested that M.leprae could be found in the environment and may have a role in continuing the transmission of the disease. The exact role of the environment in the transmission dynamics is still speculative. The present study was undertaken to find out the presence of viable M. leprae among patients’ environment like soil and water which may be an important factor that may be attributed to the transmission of the disease.

Methods: Technique such as reverse transcription PCR has the potential to detect RNA, which indirectly indicates the viability status of the organism. In order to trace the possible reservoir for transmission of leprosy in a leprosy endemic area of Purulia (West Bengal, India), environmental samples were collected from leprosy patient areas which include 700 soil and 400 water samples. These samples were classified into five zones based on the status of the patient (undergoing treatment, on follow-up, recovered, new cases and control areas). The soil samples were collected with the help of a metallic spoon from the area where the patients reside/visit daily like cooking, bathing, eating and washing places showing significantly higher RT-PCR positivity when compared to the drier areas like entrance of the house and sitting places indicating that the transmission of the disease could be associated with the patient’s environmental activities. Samples from the control area where no active leprosy case resided in the last 5 years revealed 4 (2%) PCR positivity for M. leprae. We further classified the soil samples based on the various inhabitant areas of the active leprosy cases and identified that most places like bathing places, areas near the drain water and washing places showed significantly higher RT-PCR positivity when compared to that of the drier areas like entrance of the house and sitting places indicating that M.leprae may survive better in moist places. Samples from the control area where no active leprosy case resided in the last 5 years revealed 4 (2%) PCR positivity for rDNA in soil samples and water samples were completely negative.

Conclusion: This study suggests that leprosy patients discharge or shed viable M. leprae into their surrounding environment (soil and water) which may act as potential reservoir for M. leprae that may play a role in the focal transmission of the disease.

Results: We observed high PCR positivity in soil samples (218 out of 700; 31%) and water samples (73 out of 400; 18.2%). These samples when further screened for viability, it was observed that 106 soil samples (48.6%) and 34 water samples (46.5%) showed presence of 16S rRNA. We further classified the soil samples based on the various inhabitant areas of the active leprosy cases and identified that most places like bathing places, areas near the drain water and washing places showed significantly higher RT-PCR positivity when compared to that of the drier areas like entrance of the house and sitting places indicating that M.leprae may survive better in moist places. Samples from the control area where no active leprosy case resided in the last 5 years revealed 4 (2%) PCR positivity for rDNA in soil samples and water samples were completely negative.

Conclusion: This study suggests that leprosy patients discharge or shed viable M. leprae into their surrounding environment (soil and water) which may act as potential reservoir for M. leprae that may play a role in the focal transmission of the disease.

O-180
Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session: Molecular Biology 2
Presenter: Ida Maria Dias baptista

LEPROSY IN RONDONOPOLIS, MATO GROSSO, BRAZIL: SPATIAL, CLINICAL AND ETHNIC CHARACTERISTICS AND MYCOBACTERIUM LEPRAE STRAIN TYPE PROFILES IN A HIGHLY ENDEMIC CITY.

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Introduction: The municipality of Rondonopolis, in Mato Grosso is highly endemic for leprosy despite the existence of qualified services for diagnosis and monitoring of cases and the implementation of multidrug therapy. To address this paradox, a comprehensive molecular epidemiology study was initiated.

Methods: Structured questionnaires including clinical, residential, demographic, and occupational details and skin samples for diagnosis and laboratory tests were collected from 260 patients diagnosed during the period of 2007-2010. Genotypes of M. leprae were determined using multiple locus variable number of tandem repeat analysis and SNP typing using DNA extracts from skin biopsies taken before starting treatment. GoogleMaps was used to localize patients.

Results: According to the World Health Organization operational classification, there were 102 paucibacillary and 155 multibacillary patients. The Ridley-Jopling classification demonstrated a tendency towards the tuberculosis spectrum [TT (n=102); BT (n=85); BB (n=48); BL (n=12); LL (n=9) (n=3, no data (n=0)]. The city is primarily urban with 200,000 inhabitants at a density of 474.9/km. The patients could be assigned to 106 smaller units (villages), with 1-11 per unit. Neighborhoods of high endemicity encompassing adjoining villages could be detected. The self-reported ethnicity was white (n=106), mestizo (n=140), black (n=13) and indigenous (n=0). There is no obvious spatial clustering of these ethnic groups. When considering the clinical presentations, there are more TT cases amongst the mestizo and BB cases amongst the white groups. Females tend to present towards the TT spectrum, while males are of the BT type. Of the 260 biopsy DNA samples analyzed across 17 VNTR loci, for each locus approximately half of the samples yielded allele information. 15 loci were polymorphic (2-23 alleles), while the loci 6.3 and 21.3 were not. The SNP type 3 is predominant amongst the subset that was typed. Uncomplete genotypes is attributed to the high proportion of tuberculoid cases but a high degree of genotypic variability was observed. Nonetheless, we observed a particular patient population structure composed of some subgroups.

Conclusion: This is the first largest multi-year study of leprosy patients with well-defined geographic, demographic, clinical and M. leprae genotype data in Brazil. The bulk of the cases can be assigned to neighborhoods with the narrowest streets located in the west, north, south and east corners. Multiple VNTR strain types are found in each of the neighborhoods. Genetic diversity within and among the neighborhoods does not reveal a distinct population structure. Spatial clustering of patients is likely a consequence of socio-economic status. The maintenance of a highly endemic state with a preponderance of tuberculoid cases, alongside microevolution in VNTRs is interesting and presents opportunities for addressing the dynamics of transmission. Are these infections of remote or recent origin, or is there a mixture of local and exogenous strains due to high levels of flux in and out of Rondonopolis from regional economic forces and is there a genotype to phenotype relationship? Further investigations are in progress to formally analyze the bacterial genetic variation when superimposed with the spatial, ethnic, clinical and socio-economic attributes. Funding: DZITMS/CPqDB Grant (756051/2008:9), NIH N01 AI 25649 and ROI AI04719.

O-181
Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session: Promoting Early Diagnosis
Presenter: Herman Joseph Kawuma

PROMOTING THE EARLY DIAGNOSIS OF LEPROSY, INTRODUCING THE SYMPOSIUM

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Introduction: The early diagnosis of leprosy refers to the diagnosis made before the occurrence of consequences (disabilities). Hitherto, the diagnosis of leprosy is based mainly on clinical signs. The eliciting of the signs depends on the clinical skills of the examiner and can be very subjective. The capacity of peripheral health services to deal with diagnosis (and other essential tasks) is one of the key elements of quality leprosy services. There are cases where diagnostic signs may not be easily elicited in which cases the final decision is based on methods demonstrating the causative organism: bacteriology (the slit skin smear examination), histopathology, immunodiagnostic tests or molecular biology (PCR). Laboratory facilities for skin smear examinations were already identified as one of the weakest link in leprosy control programmes in the pre MDT era; these and histopathology are hardly used under programme conditions in many endemic countries. Early diagnosis of leprosy is, at the moment, the most effective way to prevent leprosy related disabilities and to interrupt disease transmission. The symptoms and signs that should prompt suspicion of leprosy have been listed before alongside guidelines on the cardinal signs for diagnosis of leprosy. A higher than average yield of new cases is expected from systematic screening of contacts of known cases particularly in low endemic situations. However, in spite of the availability of this knowledge, analysis of the characteristics of newly detected cases seems to point to a sustained delay in diagnosis in many endemic countries. This symposium examines the existing and potential tools for promoting early diagnosis of leprosy in the context of declining disease incidence and clinical skills but in which sensitive diagnostic tools are required in order to ensure that all cases that need treatment are diagnosed and cured.

Methods: Review of literature on innovations to improve leprosy diagnosis from clinical, public health/community and basic science perspectives.

Results: Summary of the progress made in the last few years on improving the diagnosis of leprosy will be made. During the symposium on going initiatives will be described. New innovative approaches to promote early diagnosis of leprosy will be presented.

Conclusion: There is need to maintain community awareness of the early signs of leprosy in leprosy endemic countries. The methodology for awareness raising must be appropriate for the times e.g. using newer communication channels like the social media and exploiting the opportunities provided by community mobilization interventions targeting other health problems. Good quality services per se will attract more people with suspect symptoms to go for examination. Measures should be taken to ensure that clinicians in endemic countries continue to keep leprosy on the list of possible diagnoses.
Health systems should have inherent referral mechanisms that permit suspect cases to gain timely access to the level where the diagnosis can be determined. Special emphasis should be placed on the role of dermatologists and dermatology services in sustaining essential clinical skills. The work of basic scientists must be accelerated to develop more sensitive tools to diagnose leprosy infection and disease at peripheral levels; the more peripheral services especially in high burden countries should be made available to collaborate in field-testing of new diagnostic tools.

Conclusion: Monitoring childhood leprosy is crucial for better control and understanding of the transmission of the disease. Contact surveillance is a primary strategy for early detection of leprosy in children but further interventions should be applied for increasing timely diagnosis in children.

O-182
Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session: Promoting Early Diagnosis
Presenter: Diana Lockwood

DIAGNOSIS OF LEPROSY IN THE UNITED KINGDOM

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Introduction: Leprosy is an important imported disease and can be difficult to diagnose, especially in a non-endemic setting.

Methods: We reviewed 145 patients treated for leprosy at the Hospital for Tropical Diseases, London, between June 1995 and December 2012, looking at clinical presentation, demographics and referral pathway.

Results: Mean age at diagnosis was 39 years and 72% were male. Patients had migrated to the UK from 31 leprosy-endemic countries, most commonly India (29%), with the Indian Subcontinent (India, Nepal, Sri Lanka, Bangladesh and Pakistan) accounting for 52%, of patients. The next most endemic countries were Nigeria (11 patients) and Brazil (nine patients). Seven patients were born in the UK and acquired their leprosy overseas; 4 were of African descent and moved Nigeria or Uganda for between 11 and 26 years. Three were Caucasians who acquired their disease after long stays in Bangladesh, India and Indonesia respectively.

The mean time to onset of symptoms to diagnosis was two years (range one month – 15 years). 42% of patients had a late diagnosis. The commonest reason for delayed diagnosis was misdiagnosis as a granulomatous skin lesion, notably sarcoidosis and lupus.

All types of leprosy were seen with 48% having borderline-tuberculoid (BT) leprosy. Motor and sensory function in 43% and 51% of patients respectively at diagnosis. ENL was seen in 36 patients.

Conclusion: Dermatologists, neurologists and rheumatologists should remember leprosy in their differential diagnosis of skin lesions and peripheral neuropathy.

O-183
Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session: Promoting Early Diagnosis
Presenter: Mariana Hacker

LEPROSY IN CHILDREN UNDER 15 YEARS OF AGE: A CHALLENGE FOR LEPROSY CONTROL

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Introduction: Leprosy detection rate in children under 15 years of age is an important indicator of the transmission in the community and the efficiency of control programmes. Defining the differences between children diagnosed from passive and active case detection programmes may provide important information for establishing strategies for timely detection.

Methods: The profile of all new untreated leprosy patients and of contacts under 15 years of age registered at the Souza Araujo Leprosy Outpatient Clinic in Rio de Janeiro during 1987-2010 was evaluated. Children diagnosed under the contact surveillance programme (CSP) were compared to the children referred by other centers or that arrived spontaneously (passive detection - PD).

In addition, all of the child contacts of leprosy patients were evaluated to compare the profiles of the healthy (HC) and the leprosy children, clustering by index case. Chi square test and logistic regression were applied.

Results: Out of the 2777 patients registered during the period, 341 (12.3%) were children under 15 years of age. A total of 128 were diagnosed from the CSP and 159 from PD, of which, only 23.9% had known contact with a leprosy patient. Most of the children 163 (56.9%) were males. The PD children were significantly older (p=0.010) than the CSP children (mean age 8.9±1.79 and 7.8±3.4 years, respectively). Although most of the children were paucibacillary (75.9%), a significantly higher (p=0.032) proportion of PD children (69%) than CSP children (39%) were multibacillary (MB), and had a higher (p=0.004) bacillary index (median=1.32 and 0.75, respectively). An alarming 8.8% of the PD children had already developed grade 2 disability (GD2), while only 1 CSP case (0.9%) diagnosed in 1987 had GD2 (p=0.010). A total of 7174 contacts were evaluated in the Clinic during the period, out of which 2345 were children, belonging to 982 index cases (clusters). At first examination, 88 (3.9%) children were diagnosed with leprosy (copperwaste cases – CP). No difference was observed regarding gender (p=0.398), but CP were significantly (p=0.003) older (mean 8.1±1.65 years) than the HC (7.7±1.46 years). The presence of a scar from previous BCG vaccination was significantly (p<0.0001) more frequently found in HC (92%) than in CP (67%). A higher proportion of the CP (93%) than of the HC (71%) were contacts of MB index cases (p<0.001). In addition, the CP index cases had significantly higher (p=0.003) bacterial index. Interestingly, no difference was observed when comparing the frequency of GD2 of the index cases between the groups (p=0.666).

Conclusion: Monitoring childhood leprosy is crucial for better control and understanding of the transmission of the disease. Contact surveillance is a primary strategy for early detection of leprosy in children but further interventions should be applied for increasing timely diagnosis in children.

O-184
Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session: Promoting Early Diagnosis
Presenter: Marcus Virmind

“TOUCH YOUR SKIN”: A NEW METHOD FOR SUSPECTING LEPROSY


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Introduction: In Brazil, the control of leprosy is still a challenge given the high detection rates in locations in north, north-east and the mid-west regions of the country. One of the best ways to interrupt the chain of transmission of leprosy is early diagnosis and treatment of disease, which should be seen as priorities. Therefore, the aim of this study was to evaluate the applicability of a new and simple method for suspicion of leprosy by individuals in the population: “Touch Your Skin” (TYP).

Methods: A descriptive, experimental, cross-sectional study was undertaken with individuals living in Rondonopolis - MT, with or without dermatological and/or neurological complaints, who attended the Health Centre Jardim Guanabara spontaneously or by appointment. Selection criteria included: having a diagnosis of leprosy or having been affected by leprosy, having performed dermatological examinations and/or skin sensitivity and not able to answer the main question “do you feel or have felt numbness in any part of your body?”. The TYP method was demonstrated by the researcher and after it was asked each individual to touch his/her skin with the fingers, sliding them gently on each body segment except the scalp and pudendal areas. Then, they were asked to report the term of choice indicate the location of the area (s) of the skin which they considered as having some sort of sensory disorder. Individuals, who reported alteration, were classified as TYP positive and, in the absence of any complaint, as TYP negative. The TYP positive individuals underwent examination of sensitivity in no more than three of the referred areas. It was used a set of six nylon monofilament (SW), adopting the international standard for interpreting the results. The test was done by trained health personnel.

Results: Participated in the study 509 (100%) individuals aged 7 to 82 years (mean = 35.8 years), among them, 314 (62%) women and 195 (38%) men. Among those who reported sensory alteration, 80% preferred the term “numbness” to describe the skin sensitivity disorder. Upon examination, 383 (75.9%) individuals were TYP negative and 126 (24.7%) were TYP positive. Among the 126 TYP positive, 83 (16.3%) were also MF positive (4 individuals under 15, aged 15 to 59 years and 17 over 59 years). The results of Semmes Weinstein filaments (SW) test showed cutaneous sensitivity disturbance at the level of 0.2 g in 20 individuals; 2.0 g at 18, 4.0 g at 13, 10.0 g at 11: 300.0 g at 15 and not feeling 300 g - 6 subjects. Conclusion: The “Touch Your Skin” method identified 126 suspected cases of having altered skin sensitivity, among which 66% were confirmed by SW test. Since the alteration in skin sensitivity is an important sign for suspecting leprosy, the TYP method seems to be an innovative resource whose impact should be confirmed by future studies.

O-185
Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session: Promoting Early Diagnosis
Presenter: Patrick Brennan

SAFETY AND EFFICACY ASSESSMENT OF TWO NEW LEPROSY SKIN TEST ANTIGENS IN TARGET POPULATIONS: RANDOMIZED DOUBLE BLIND CLINICAL STUDY

P. J. Brennan 1,*, B. Riviere 1 on behalf of CSU Team, D. Hagge 1,*, on behalf of Neapl Team, C. Smith 1,*, on behalf of EMES Team, C. Sizerone 2, R. Mason 1,*, on behalf of NIAMD Team

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Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session: Promoting Early Diagnosis
Presenter: Meenu Sethi

DISABILITY AMONG CHILDREN AFFECTED BY LEPROSY STILL A CHALLENGE - FINDINGS FROM A REFERRAL HOSPITAL IN NORTH INDIA

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Introduction: India declared elimination of leprosy more than five years ago and leprosy services have been integrated into the general health care system for over a decade. Despite free availability of Multi-drug therapy (MDT), better transportation, and widespread awareness campaigns, the high incidence of disabilities in children with leprosy is unacceptable and poses a major challenge to society and leprosy services. Urgent investigation is needed regarding how they could have been detected earlier and prompt action taken to prevent disability and provide basic guidelines for the programme. This is a challenging task and has not been given attention so far. Therefore, the incidence and background of leprosy-related disabilities in children seen at The Leprosy Mission community hospital in Delhi, India during 2009-2012 are presented here to estimate the burden of disabilities in children and to identify measures to prevent them.

Methods: New all leprosy affected untreated children less than 15 years of age who were brought to The Leprosy Mission Community Hospital Delhi, India during 2009 to 2012, were studied through chart reviews, documenting in detail the disabilities, along with other clinical and socio-demographic information.

Results: A total of 94 children affected by leprosy reported for treatment during this period, of whom 9 (9.5%) had grade 1 disability and 23 (24.4%) had grade 2 disabilities. Disability rates increased with age, there were no gender differences and all were multibacillary (MB) cases. Most residents were from Delhi. Palmar anaesthesia was the most common grade 1 disability, 70% had hand disability and 3 had multiple disabilities (Eye, Hand and Foot). There was a high correlation with multiple skin and nerve lesions. There was no association with intra-familial contact, Bacteriological index (B.I) or reactional status at the time of reporting.

Conclusion: Regardless of the fact that this study was done in a referral hospital the grade 2 disability rates among children affected by leprosy are alarmingly high. This needs urgent action and effective awareness measures, such as early reporting and prompt treatment with MDT. This indeed is a challenge not only for the Government but every citizen. It may be worthwhile teaching not only early signs of leprosy but also early signs of neuritis, and prompt reporting in suspected cases. Such initiatives may also help understand the transmission processes better and thus might lead to faster eradication of leprosy.

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ASSESSING THE ATTITUDES AND PERCEPTION OF COMMUNITY MEMBERS AND HEALTH WORKERS REGARDING LEPROSY STIGMA

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Introduction: Although the incidence of leprosy has declined, but the proportion of newly detected cases with grade 2 disability has not. Stigma related to leprosy was partly held responsible for the delayed presentation, the main cause of disability. This study was conducted to measure the attitudes and the perception of community members and health workers towards leprosy stigmatization, and to provide baseline data for those who are interested in launching de-stigmatizing interventions.

Methods: The study was done by qualitative and quantitative methods in four sub-districts of Chaiyaphum province, Thailand. Community members and health workers were interviewed using open-ended questions and Exploratory Model Interview Catalogue (EMIC) scales. Focus Group Discussion was conducted among health volunteers. Content analysis was used for qualitative information. Frequency was used to describe the characteristics of study subjects. To look for association between EMIC score and socio demographic factors, age, marital status, education level, having seen people affected by leprosy before; a logistic regression was performed. A p-value of <0.05 was considered indicative of a statistically significant difference or association. T-test was applied to compare the mean of EMIC scores of community members and those of health workers.

Results: Both community members and health workers had negative attitudes towards leprosy, and perceived that people affected by leprosy were being stigmatized by the community. There was no difference of attitudes and perceptions about leprosy between people with different sex, age, marital status, education, and leprosy experiences. Community members and health providers perceived leprosy as a disease with dirtiness, bad odour, oozy wound, unpleasant skin, and impairments. Most community members thought leprosy was hereditary and incurable. People affected by leprosy tried to keep others from knowing their disease. People with leprosy related disability practice self stigma by not participating in community activities, less using health service. Community members practice stigmatizing behaviour towards people with leprosy related disability by avoiding and back biting. Health providers spent time as less as possible with people with leprosy related disability.

Conclusion: The stigma against leprosy may result in the quality of life of those affected and their accessibility to health care services. De-stigmatizing intervention taking local beliefs, attitudes, and perception into consideration was suggested to be conducted by the authors.

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ROLE OF STIGMA AND DEPRESSION IN INFLUENCING THE LEPROSY AFFECTED PERSON’S QUALITY OF LIFE

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Introduction: The visible impairments and disabilities cause the stigma and discrimination experienced by leprosy patients to a greater extent while they either are undergoing or have finished their treatment. The stigma arises either because of the physical changes, the psychological trauma or through the decline in social relationships. The stigma when internalized (self), anticipated (psychologically perceived) or experienced (social) leads to depression. The patient tends to lack in their aspirations because of the depression and hopelessness directly influencing the quality of life. This study tries to find out the role of stigma in influencing the leprosy affected person’s quality of life.

Methods: A cross sectional survey was done among n = 128 persons affected by Leprosy who visited a tertiary leprosy referral hospital in Delhi for undergoing treatment. Standardized questionnaires were administered on patients to assess the level of stigma, depression, living standards and their participation in social activities. Individual consents were taken and privacy was maintained for the patients who participated in the survey.

Results: The results validate the influence of visible deformity in causing stigma on leprosy affected persons. The patients with self stigma were found to be suffering from depression and reduced active social participation. The study further brought out a positive correlation between a visible

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deformity and the low quality of life among patients affected with Leprosy. The results also suggest that gender has very less influence on the role of stigma among the leprosy affected people.

Conclusion: The study clearly substantiates the need to consider treating the leprosy affected patient with and without impairments in a holistic way and to address their social, psychological and emotional needs to bring a change in their quality of life.

Effective information, education and communication materials should be used to educate the community on the causes and consequences of Leprosy and also to involve the members of the community in teaching and training the patients on lifestyle modifications, and self-monitoring and reporting of their impairment status.

O-189
Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session: Social Aspects and Self Care
Presenter: M. S. Raju

REASONS FOR DEFAULTING FROM MDT: PERSPECTIVES OF PEOPLE AFFECTED BY LEPROSY, HEADS OF FAMILIES AND COMMUNITY MEMBERS

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Introduction: Personal, social, family and community factors are known to be highly influential in public health interventions and consequently important potential targets for understanding defaulting from MDT. In response, an innovative research programme was developed which focused on community based and patient-driven approaches to prevent defaulting from MDT in leprosy. Preliminary studies in this programme found variable adherence to treatment across time, communities and individuals, and identified a need for greater understanding of stakeholder perspectives regarding the importance of adherence to treatment and the reasons for defaulting. A subsequent research project was undertaken to understand the diversity of issues and concepts related to defaulting, from the perspective of leprosy patients, family members and community members.

The objective of this study was to identify the array of factors associated with non-adherence to MDT in leprosy, according to individuals who have defaulted from MDT, their head of household and local community members.

Methods: From data collected at four TLM Hospitals in Andhra Pradesh (Satul), Chhattisgarh (Chhindwara), Maharashtra (Kolhapur) and Uttar Pradesh (Barabanki), across a four year period (2007-10) a list of individuals who defaulted from MDT was compiled. Semi-structured interviews were conducted with 714 respondents, comprising 277 people who had defaulted from MDT, 233 respective heads of family/household, and 205-Community Members/Key Informants from their local community. The interviews were conducted by trained research assistants appointed within each centre by the community based project. Participant responses were recorded on the interview schedule. Based on thematic analysis of interview notes across all respondents, four major categories of response were noted and 14 sub-themes were identified.

Results: Key reasons for defaulting included Medical, Psycho-social, Economic and Health System related factors. Leprosy patients who had defaulted from MDT primarily cited medical reasons and health system related reasons whereas the heads of families mostly noted psycho-social and economic factors as influential in defaulting.

Conclusion: The nature and relative importance of reasons for defaulting varied considerably across people affected by leprosy, their family members and community members, as well as across different sites. Details of these findings are outlined and the identified sub-themes (and their relative frequencies) provide useful information for the development of community programmes and the maximization of adherence.

O-190
Presentation Time: Wednesday 18/09/2013 at 16:00 – 17:30
Symposium Session: Social Aspects and Self Care
Presenter: Shyamala Arand

PERCEPTIONS AND ATTITUDES INFLUENCING THE PRACTICE OF SELF CARE IN LEPROSY

S. Arand 1 and TLMTI POID Audit Team

1The Leprosy Mission Trust India, New Delhi, India

Introduction: Prevention of Impairment and Disability (POID) due to leprosy is of main concern both during and after a person’s treatment with Multi Drug Therapy. The practice of regular self-care is the cornerstone of POID. The consequences of neglecting self-care are great, leading to loss of productivity; deformities and ulcers; stigma; and enormous physical and mental suffering for thousands of people affected by leprosy and their families.

The Leprosy Mission Trust India (TLMTI) works in 8 states in India through 14 Tertiary Leprosy Referral Hospitals, and 6 Vocational Training Centres (VTCs). In 2011, 66,558 newly diagnosed leprosy cases in 14 hospitals, 15.3% had Grade I and 22.1% had Grade II disability; together constituting 37.4% impairment and disability at time of diagnosis. In the VTCs in 2011, 182 young people either treated or under treatment for leprosy were admitted to various vocational training courses, some with already established impairment or disability; some still having reactions and neuritis and recurring ulcers.

To understand the effectiveness of its POID interventions, and to recommend new more effective ways of POID, of which Self Care is an important aspect, TLMTI conducted a POID Audit in 2012.

Methods: The Audit was designed by a team of resource persons with POID leprosy expertise (internal and external to TLMTI) and field tested in March 2012. The Audit was conducted in 6 hospitals and 3 VTCs in 7 states of India from April - June 2012. Audit teams consisted of physiotherapists, occupational therapists and doctors. Data for self care teaching and practice was collected through Observations, Semi structured interviews, Focus Group Discussions, Matrix scoring participatory tools and random sampling of leprosy records.

Results: Despite efforts to teach self care, it was observed that majority of the people were not practicing self care at home. Many could tell what should be done rather than why it should be done. They had no concept of lifestyle modifications; thought they were not possible or practical, or felt stigmatized to practice them. They thought ulcers were inevitable and impossible to prevent, and that medicine is the only way for ulcer healing. People with lopagalthamosis were not protecting their eyes. For most, self care was about soaking, scraping and oiling, which they were practicing sporadically at all, as water was not always available at home. People were using blades to trim calluses; they had blisters on their anaesthetic hands from drinking hot tea. They did not know how to do ulcer dressings at home. The elderly had associated geriatric problems and were dependent on someone in the family for self care. There were many barriers to protecting anaesthetized feet from injury through the regular use of protective footwear; culture and stigma being some of them. There was a minority practicing self care and factors contributing to this were a supportive family involved in the self care; respect and status in the family and a good understanding of self care and lifestyle modifications.

Conclusion: There is a disconnect between self care taught and self care practiced. Institution based self care teaching and methodology will not impact as much as self-care teaching and institutional support developed in and for the people’s own environment that members of the family and community. The concept of lifestyle modifications has not become an inherent part of self care teaching. There is a level of self stigma and lack of insight contributing to neglect of self care, and self care programmes should also be addressing behaviour change.
In one country, some SGs will be approached by using the Most Significant Change evaluation technique.

In another country such qualitative information will be obtained through Focus Group Discussions.

In a 3rd country the method of choice will be “What matters to us?”, as was developed by TLM.

In a 4th country the photovoice method will be considered.

**EXPERIENCE OF LEPROSY AFFECTED PERSONS IN INCLUSIVE GROUPS**

**Presentation Time:** Wednesday 18/09/2013 at 16:00 – 17:30

**Symposium Session:** Social Aspects and Self Care

**Presenter:** Prakash Wagle

Introduction: The new WHO CBR guidelines in Leprosy and CBR chapter has clearly mentioned that “Current special leprosy rehabilitation programmes should open up their services to people with other disabilities in order to tackle stigma; facilitate integration and work more efficiently as more people could benefit from existing services.” Therefore, with an aim to facilitate social inclusion of persons affected by leprosy, BIKASH Nepal has started CBR programme that includes persons affected by leprosy, people with disability and non-disabled people.

Methods: BIKASH Nepal has formed five self-help groups which consist of people affected by leprosy, people with disability and non-disabled people. There are 63 members in total. Out of 63 members 28 are people affected by leprosy, 26 are people with other disability and 9 are without leprosy and disability.

A focus group discussion with all five groups was carried out in February 2013 to learn about the experience of leprosy affected persons being in the inclusive self-help group (SHG) and the attitude of other disabled and non-disabled members towards leprosy and the leprosy affected members of their group.

A focus group discussion with all five groups was carried out in February 2013 to learn about the experience of leprosy affected persons being in the inclusive self-help group (SHG) and the attitude of other disabled and non-disabled members towards leprosy and the leprosy affected members of their group. 75% of the group members were female and no children under the age of 18 were included in the group. The leprosy affected people and other members were asked to share their experience being in the inclusive groups.

Results: The leprosy affected members said they do not feel like discriminated in any matter of the group. They visit schools together to talk about leprosy and disability. They decide together and leprosy affected people are given the leadership position in the group which gives them social respect. A male member of the group who is under medication for leprosy and has a habit to drink alcohol said, the other members of the group create pressure to him not to drink alcohol. Similarly, one other member of the group said that other members of the group ask him if he is taking medicine regularly or if he has any other problem due to the disease. Other members of the group also said that they do not feel like they are being with people affected by leprosy. One female member said, everybody has some sort of problem and leprosy is one among them. Therefore, we all have our own problem because of which we have come together to fight against the problem. All members suggested that all members of the society need to be informed about leprosy. Group members also said that they are happy to learn so much about leprosy and disability which they would not learn had they been in other groups like mothers group in the community.

Conclusion: Existing leprosy-only self-help groups should be stimulated to open membership for people with other disabilities as well. Alternatively, people affected by leprosy may join existing multi-disability self-help groups and disabled peoples’ organisations. The empowerment of people with leprosy often needs special attention and CBR field staff as well as management should be aware of continued double discrimination of this group of people. It may be that affirmative action programmes should be considered.

**SOCIAL PARTICIPATION OF DIABETES AND EX-LEPROSY PATIENTS IN THE NETHERLANDS AND PATIENT PREFERENCE FOR COMBINED SELF-CARE GROUPS COMBINED**

**Presentation Time:** Wednesday 18/09/2013 at 16:00 – 17:30

**Symposium Session:** Experiences of People and Communities

**Presenter:** Henry de Vries

Introduction: Earlier we showed that neuropathic complications limit social participation of ex-leprosy patients, even in a non-endemic leprosy setting like the Netherlands.(1) Self-care groups for ex-leprosy patients can strengthen self-worth of participants, prevent further handicap, and enable the exchange of coping strategies.(2) For non-endemic leprosy settings with a very low rate of leprosy patients a self-care group exclusively for (ex)leprosy patients would therefore probably be unfeasible. A combined group with patients facing comparable morbidity could be more efficient than disease specific self-care groups. Here, we studied the comparability in social constraints of diabetic patients and ex-leprosy patients. Moreover, we investigated if combined self-care groups for ex-leprosy patients and diabetic patients are feasible and desirable for possible participants.

Methods: Social participation was studied based on in-depth interviews and Participation scale information collected from 41 diabetic patients and compared with the data of 31 ex-leprosy patients from a prior study.(1) Moreover, we made an inventory of limitations and attitudes towards combined self-care groups for diabetic patients with neuropathy.

Results: The following themes emerged among diabetic patients: disease confrontation, dependency, conflict with loved ones, feeling inferior, stigma, having to abandon social activities, fear of the future, lack of information and hiding the disease. These themes were very similar to those of the previously interviewed ex-leprosy patients. Stigma and disease ignorance among Dutch health care workers were more often mentioned by ex-leprosy patients. Whereas ex-leprosy patients perceived stigma on multiple fronts, diabetes patients only mentioned feeling inferior. Diabetes patients did acknowledge the comparison with leprosy as far as their neuropathic complications concerned. Yet only 17% of the diabetic patients showed interest in combined self-care groups. The majority preferred disease specific self-care groups only focused on diabetic patients.

Conclusion: The physical complications and social problems in ex-leprosy and diabetic patients with neuropathy are similar. Both groups show social participation limitations, yet in contrast to diabetic patients, ex-leprosy patients perceive stigma in more domains in life. However, since diabetic patients prefer disease specific more homogeneous self-care groups, combined groups with ex-leprosy patients do not seem an efficient option for non-endemic leprosy settings. Further research is warranted into the acceptance and impact of self-care groups as a strategy to reduce social constraints by diseases causing neuropathy.

**IMPROVING THE QUALITY OF LIFE OF DISABLED PERSON LIVING IN LEPROSY COLONIES IN BIHAR THROUGH CHETNA PROJECT**

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1NGO, LEPRA Society, Patna, India

Introduction: CHETNA project began in the three districts of Bihar with support of Sasekana Memorial Health Foundation in 2011. The project operational areas are three districts of Bihar i.e. Purnea, Munger and Khagaria. The project covers 4 colonies of People Affected with Leprosy (PALs) i.e. 2 in Purnea and 1 each in Munger and Khagaria with more than 300 families. The project has an aim to empower people with leprosy and their families. To eliminate stigma and discrimination among the community in 3 districts in Bihar.

Methods: Four Lokdoots were selected from the same colonies after a consensus was reached upon among the families residing in the colonies, representatives of Bihar Kusht Kalyan Mahasangh (BKMM) and LEPRA India. At a very initial phase of the project “Lok Doots” had undergone comprehensive four day training program. They were trained on the objective of the project, and were also briefed on the disease and the preventive mechanisms that have to be followed. In starting of the project a rapid assessment was done using simple questionnaire for house to house survey by the Lokdoots. The analysis included project reports, records and interaction with the beneficiaries and inmates of 4 (Munger, Khagaria & Purnia district of Bihar) Leprosy colonies. The colonies have 315 houses with 376 disabled people. The population of the colonies is 465 and 78 having ulcers. A retrospective, record based qualitative analysis of process data was done.

Results: Within two year Lokdoots are empowered and acting on their own for the welfare of colonies. They were having regular meeting with GOvt. departments and sharing the experience with each other. Many Governments welfare scheme were brought by them such as Indira Awas Yojna for 61 families, pension benefits for 44 households, benefit of BPL card for 55 families, similarly Antyodya Card for 20 and 5 received disability certificates, Education support – Higher education, and Disability day)

Conclusion: Through these lookdoots “Chetna” project is improving the quality of life of the persons and their family member affected by leprosy – Restoring Dignity. Lokdoots are now invited by respective district health society in monitoring meetings, training and other programme. They also ensure availability of appropriate treatment and aids and appliances to persons affected by leprosy living in community and 4 leprosy colonies. Foster linkages between persons affected by leprosy and departments of health and social justice at district level for Palliative care and self-reliance. – Elimination of stigma.

This is the sustainable model run by their own member of community. They were recognize by the District Official and invited in every planning of National Leprosy Eradication Programme and Welfare department.

**ORGANIZING FOR CHANGE: FACILITATING THE EMERGENCE OF IDEA CHAPTERS IN SOUTHERN NIGERIA**

L. C. Ugwu 1, N. I. Ndbuzi 1, 2, J. J. Chukwu 1, A. Meka 1, D. Oshi 1, C. Neafor 1, N. O. Madchiche 2

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Introduction: Lo-sheng sanatorium was originally established in 1930 under Japanese colonial rule, reflected segregation policy of Hansen’s Disease (leprosy). After WWII, sanatorium also succeeded by new government. Whether Japanese imperialism or China Nationalist Party, the government had promoted the isolation policy for public health in the society and increased discriminations and stigmas against people affected by Hansen’s Disease / people living with Hansen’s disease (PHMD) in the sanatorium. Therefore, processes of preserving historical sites of Hansen’s disease, empowering PHMD and eliminating social discrimination against Hansen’s disease are still going on in Taiwan. Furthermore, those are intimately related each other. The advancing Lo-sheng sanatorium has been emphasizing on home and history preserving to regain our lost dignity and recognize value of human rights of PHMD.

Methods: This study includes two deferent research methods and perspectives below;

1. Architectural and social history approach: From the aspect of architectural history, it can be illustrated as a typical post-colonial usage of colonial architecture. But we should also focus that it continually have been reformed by residents themselves, was finally made up as a self-build ‘organic’ architecture and environment. That also can meet criteria of to be recognized as a special historical site. 2. Sociological, historical and anthropological action research: Author is one of founding member of IDEA Taiwan, had participated the movement for preservation from early years, and had been deeply engaged in sociological, researches of residents in the sanatorium. Specifically, collecting old documents and photographs, interviewing oral history.

Results: Unfortunately although the efforts for preservation, more than seven tenth of sanatorium was demolished. But we note significant changes in PHMD themselves and whole society in Taiwan. Residents found that their sanatorium is an irreplaceable living environment, as if it is their ‘second homeland’, thus re-identified their own lives and history of Hansen’s disease in Taiwan. The claim for preservation became opportunity for eliminating prejudice and discrimination against Hansen’s disease in the society. In the process of preserving sanatorium, residents organized self-help group of PHMD, which was transformed as IDEA Taiwan in 2007. It also motivated international interactions and solidarity of PHMD. Through the international interaction and experience sharing, we found that similar situations have been happening in many counties in the world. Regardless, PHMD worry about becoming ‘people of the past’ in these countries; facing the crisis of oblivion. Hansen’s disease was already controlled in Taiwan, so that number of PHMD is decreasing year by year, some approaches for describing history of PHMD by IDEA Taiwan also are putted in practice. Besides oral history researches, we collected old photographs of life in the sanatorium, edited them as a photo book and published. On the other hand, we are also making architectural researches, such as 3D virtual restoring of demolished buildings, successfully let residents recalled their life experiences.

Conclusion: We can show the significance of the preservation movement of Lo-sheng sanatorium as below: 1. The value of historical architectures and build environment of leprosy sanatorium. It should be interpreted from various perspectives. 2. Self-empowerment of PHMD in Taiwan and memorializing its process. 3. Remembering the history of PHMD by listing historical sites as World Cultural Heritages.
Conclusion: The various interventions by GLRA Nigeria have facilitated the setting up of IDEA state chapters in southern Nigeria. With the various state chapters now in place, persons affected by leprosy are better positioned to engage government agencies at state and federal levels to argue for their rights.

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**Presentation Time:** Wednesday 18/09/2013 at 16:00 – 17:30

**Symposium Session:** Experiences of People and Communities

**Presenter:** Yun-Ming Lee Chang

**LINGERING MEMORIES OF YOUNGER DAYS IN LO-SHENG SANATORIUM.**

Y.-M. Lee Chang 1,*

1 president, IDEA Taiwan, New Taipei City, Taiwan

**Introduction:** Lo-sheng was established by Japan colonial period, but after WWII, new Taiwan government, R.O.C continued segregation policies for a very long time. In 1966, when I was sixteen years old, the health department of my hometown arrested me and other 4 young people together, we been sent on a battle ship of navy from Kinmen, a small island for navy. Before that time I never imagined I will leave my homeland for entire life. I even can’t image why I still lived here until now. I spend all my life from I was a young girl, then get married, and breed my children, now to be a grandmother. Women went inside Lo-sheng Sanatorium at first will been sent into a women’s dormitory, which called Zhen-De house, we also called it “train boxes house” because it looked very similar to a train boxes for transporting patients. Here also very like a train loading all our life, our memories and our Happiness and misfortune.

**Methods:** About my presentation, the research method comes from my life experience, real experience for a woman affected by Hansen Disease.

**Results:** In early 1970’s, health department started providing specific medicines for Hansen’s disease in Taiwan, fortunately I cured completely after two years. However, other patients and sanatorium officials asked me not to go back home. They told me that all the patients would not be accepted by outsiders in society because discrimination and stigma. Thus, I canceled my last hope will leave there, and gave up my dream go on my studying. Very fast, I get marriage with a man also segregated there. Worried won’t have children we bring up our first daughter but she need always hide inside house avoiding beenfound by managers. Even life here had no freedom, my families very love each other. People live in Lo-sheng also always help each other and experience many Pain and sorrow. Lo-sheng became our second homeland, here like a big family. So regretted, from 2002, the Taiwan government did not allow us living in Lo-sheng flat houses send to high floors hospital, and decided to demolish here to build a new Taipei MRT depot. High floor and air-conditions unfit us to live, from 2004, we decided to wake up to against eviction and protect our cultural assets of Lo-sheng.

**Conclusion:** Our firm aspirations attracted the echoes of Taiwan society and successfully gathered 7000 persons, students, artists, exports and social publics walk together before the square of Taiwan president wished to preserve Lo-sheng and our human rights. Therefore, in my experience, I discovered the people affected by HD should believe we have human rights and the always pursuit our dreams come true. In Lo-sheng movement, we finally preserved most land of Lo-sheng, pushed here to be a potential World Heritage of Taiwan. This is like a marathon, which efforts to the finish line is the winner, the brilliance of meteor touches the heart of the world. Last year We collected many pictures of our younger days in a book, called “Lingering Memories of Younger Days in Lo-sheng Sanatorium” and also gathered photographs with respect to the struggle in these eight years; including organizing the resident union of Lo-sheng, founding IDEA Taiwan, the process of international solidarity, protesting demonstration assisted by huge numbers of younger supporters, cultural activities in Lo-sheng like concerts or lectures and etc.
Surgical Approach to the Disability-Related Problems Seen on Ex-patients of Leprosy in a Community-Based Clinic

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1Chief Nurse, Plastic Surgery, Dermatology, Auen Poly Clinic, Tokorozawa-shi, Japan

Introduction: Our clinic was founded 8 years ago, with particular purpose to take care of ex-patients of HD (Hansen’s disease) along with local citizen in a community-based clinic. The specialties of our clinic are dermatology, internal medicine and plastic surgery, having each doctor in charge of.

Methods: Based on the medical records in our clinic, we present some surgical procedures which were done to improve the QOL of ex-patients having severely impaired face or limbs. Wound care measures we usually take for the longstanding ulcers on severely deformed hands or feet are reviewed as the examples for further discussion for more effective wound care.

Results: 1) Their ages are in the range of 50s and 60s, on the average 71.6 years old; 10 years younger than the people living in sanatoria.
2) HD-related disability rate is very high. 70%, 67.4%, 93% of their face, anterior part of eyes, upper and/or lower limbs respectively had grade 2 or 3 disabilities. They frequently need surgical, ophthalmological care, or management of chronic urin.
3) Treatment of ulcers on anesthetic limbs usually takes long time for complete cure and neoplasms may develop on these ulcers. We must be vigilant whether they are malignant or not.
4) Our surgical practices for tumor or tumor-like neoplasms developed on the longstanding ulcers of severely destroyed feet were successful using carefully adapted devices.
5) Although they have received various kind of reconstructive surgery long before, they need another amendment along with their aging process. Plastic surgeries for redundant eye lid and transplant surgery for atrophic thanar muscle improved their QOL and acquired good appearance.
6) Now our original purpose was achieved and the treatment of people having past history of HD has been well integrated to the community-based medicine.

Conclusion: Effective plastic surgeries could decrease the difficulties and increase the activities in their daily lives. Through usual encounter in our out patients clinic, friendly communications between ex-patients and local citizens has been emerging and growing.

Supplemental report: IDEA Japan, ex-patients’ association, Buddhists’ group and members of MSW etc; they have done a great cooperation with us in the 3rd Workshop on Sentinel Surveillance for Drug-Resistance in Leprosy held in Tokyo (WHO Global Leprosy Program; Nov. 2010).

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Presentation Time: Wednesday 18/09/2013 at 10:40 – 10:50
Abstract Topic Name: Surgical Rehabilitation
Presentation Screen Number: 1
Presenter: Dr Masako Namisato

Selection Criteria for Reconstructive Surgery in Correction of Claw Hand and Thumb Deformities in Leprosy

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Introduction: Claw hand and/or thumb-in-palm deformity due to Ulnar and/or Median paralysis are the common deformities in leprosy and main cause for stigma. Reconstructive surgery (tendon transfer) aims at restoring near normal appearance and functional ability of the hand. Though nerve damage may be the same, there can be wide variation in the presenting deformity due to anatomical, anthropometric and occupational variables. A mismatch of the surgical procedure to the presenting deformity may compromise outcome. Therefore, guidelines with option to select from various tendon transfer techniques to match the deformed hand to a specific surgery could maximize the outcome. This paper aims to provide selection criteria with indications and contra-indications for various tendon transfer techniques for correction of claw hand and thumb deformities in leprosy.

Methods: The Leprosy Mission Community Hospital at Naini, Allahabad district in Uttar Pradesh, India treats over 200 hand deformities due to leprosy through reconstructive surgery service every year. These guidelines have been developed by the surgeon and therapist/technician based on their clinical experience. There has been more than 2500 tendon transfers are done at this hospital, based on these guidelines over a period of 1997 to till date.

Results: The selection criteria with indications and contra-indications are presented with a simple and comprehensive format.

Conclusion: These guidelines may help the surgeon and therapist to maximize the outcome by selecting appropriate procedures for correction of claw hand and thumb deformities due to leprosy.
Intervention: The centre of leprosy in Kazakhstan is Ksy/ Orda. It is located in the largest endemic territory of leprosy, at the Lake Aral.

I would like to present you the Kazakh Leprosarium with the medical, social situation and the leprosy work there. I would like to speak also of the specific work in Kazakhstan.

Kazakhstan is the ninth largest country in the world, however its population is only about 15 million.

In the last century this country became part of the Soviet Union, and yet compared with the populations of the rest of Soviet republics, Kazakhstan had the highest number of leprosy patients (in 1980 more than 1,200).

Methods: During the last few decades, the number of leprosy patients has decreased considerably. Many of them died because of high age.

There are only sporadic new cases. One of the reason for this could be, that it is extremely difficult to find the contact persons of the registered patients because Kazakh people are migratory people.

An example of this is the new capital Astana which – from its beginnings 15 years ago now has a population of 1 million.

In this country Leprophobia is strongly prevalent.

Results: The situation of the registered patients is much better than it was in the past.

All patients were treated with MDT. In Kazakhstan there are some leprologists who look after the patients. Almost all of the patients are disabled.

Conclusion: The contact-check of persons is very difficult because Kazakh people are migratory people.

The medical and social situation of the registered patients has improved significantly over the past 10 years.

Conclusion: To achieve the goal of elimination in all Brazilian states will be necessary to focus on the North, Northeast and Center-West regions of Brazil.
Methods: One hundred forty-four patients with leprosy were monitored during and after the treatment with MDT in a leprosy Care Service in São Paulo city, Brazil. Epidemiological characteristics were analyzed, as well as the clinical aspects, especially in the case of disability. The disability evaluation was made as follows: grade 0 - no disability in eyes, hands or feet, grade 1 - decrease or loss of sensation in eyes, hands or feet, Grade 2 - other changes in eyes, hands or feet. The limitation of this project was that data were analyzed descriptively.

Results: Among the 144 patients included, 88 were male and 56 were female. The Ridley-Jopling classification: Indeterminate (67), Tuberculoid (15), Borderline tuberculoid (21), Mid-borderline (34), Borderline lepromatous (19) and Lepromatous (48). Twenty-five patients received MDT paucibacillary and 119 received MDT multibacillary. Leprosy reactions occurred in 90 cases (62.5%); 04 before MDT, 52 during MDT, 05 after MDT, 28 during and after MDT and one before/during and after MDT. The reactions were: type 1 (54), type 2 (16) and types 1 and 2 (20). In 52 cases there was only skin involvement, in 16 cases skin involvement and neuritis, neuritis only in 14 cases, skin involvement and arthritis in one case, only arthritis in one case, edema of the hands and feet in 5 cases and one case was not evaluated. The patients were treated with corticosteroids in 60 cases, corticosteroids and thalidomide in 17 cases, thalidomide in 7 cases and others in 6 cases. In the group without leprosy reactions the degrees of disability before MDT were grade 0 (23), grade 1 (19), grade 2 (7) and 05 cases were not evaluated and after-MDT were grade 0 (28), grade 1 (11), grade 2 (2) and 13 cases were not evaluated. In the group with leprosy reactions the degrees of disability before-MDT were 0 (28), 1 (39), 2 (14) and 09 cases were not evaluated and after-MDT were 0 (16), 1 (36), 2 (12) and 26 cases were not evaluated.

Conclusion: In this sample we observed a high incidence of leprosy reactions (62.5%). We observed higher degree of disability before MDT. One year follow-up showed higher degree of disability in patients who developed leprosy reactions. The presence of disability after MDT was observed, although the diagnosis of leprosy reactions was done as soon as the patient looked for the health service and the treatment was immediately started. Therefore, leprosy reactions are grounds for special attention from health professionals and are featuring as medical emergency. In addition patient education is important, as knowing the main signs and symptoms of the leprosy reactions, they will look for health services as soon as possible.
Labour class. More deformities were seen in borderline tuberculoid type (60%), lepra reactions were seen in 51(10%) patients. Interestingly increased deformities were seen in patients with 5 years of disease duration.

Conclusion: Leprosy is a disease of antiquity and the deformities associated with it play a vital role in perception of disease in the society. Knowledge of deformities would help clinicians to identify deformities early in the disease. This study highlights the types of deformities in various types of leprosy. The limitation of this study was small number of patients.

P-246
Presentation Time: Wednesday 18/09/2013 at 10:40 – 10:50
Abstract Topic Name: Prevention of Disability
Presentation Screen Number: 4
Presenter: Erik Post

PERSPECTIVES FOR COMBINING PEER-LED SELF-CARE GROUPS FOR PEOPLE AFFECTED BY LEPROSY OR DIABETES TO PREVENT DISABILITIES DUE TO INSENSITIVE FEET

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Introduction: Leprosy and diabetes often result in neuropathic feet, which can result in ulcers and amputations, leading to restrictions in daily activities and social participation. Prevention of disability and self-management are essential to prevent this. People affected by leprosy often learn this successfully in peer-led self-care groups (SGG). For diabetes patients this approach hardly exists. We explored the views of healthcare professionals about the possibility to combine SGGs for both conditions.

Methods: For professionals specialized in leprosy and/or diabetes in low resource settings, a questionnaire and semi-structured interviews explored similarities and differences between leprosy and diabetes concerning physical complications, psychosocial effects, and interventions that were offered. An inventory was made of their opinions to combine SGGs.

Results: Respondents to the questionnaire (N=227) consisted of 74 leprosy specialists (32.6%), 73 diabetes specialists (32.2%), 35 specialists in both leprosy and diabetes (15.4%), and 45 other professionals involved in this line of work (19.8%). There is little knowledge exchange between leprosy and diabetes, despite clear overlaps in education to prevent disabilities prevention, in skin assessment and care, and in the use of appropriate footwear. Of the respondents 75%, see similarities in physical aspects, and 28%, in psychosocial aspects. More leprosy specialists (43%) and those specialized in both (54%) are aware of combined SGGs than diabetes specialists (15%). Professionals working with both (71%) are more willing to combine SGGs than DM specialists (36%). Implementation barriers include differences in socio-economic status of group members, leprosy-related stigma, low willingness of actual care providers, and vertically organised health services.

Conclusion: Specialists caring for both leprosy and diabetes are positive about combined SGGs, while diabetes specialists are less enthusiastic. For enhancing self-management through SGGs, it is essential to increase knowledge exchange, address existing barriers, and adapt to context specific circumstances. Opinions of SGG members and end-users in general would add to the understanding of how this might be possible. Pilot studies to look into operational feasibility of combined SGGs would be welcome, and one such pilot has started in Indonesia.

P-243
Presentation Time: Wednesday 18/09/2013 at 11:00 – 11:10
Abstract Topic Name: Prevention of Disability
Presentation Screen Number: 4
Presenter: Dr Abraham Selvasekar

DISABILITY TREND AMONG NEW CASES REPORTED TO A TERTIARY CARE REFERRAL CENTRE: SHARING EXPERIENCES FROM DELHI METROPOLIS

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Introduction: The National Capital Territory of Delhi is the fastest growing metropolis in the world with a population of 17 million (2011 census). It attracts a huge migrant population seeking livelihood options from surrounding states which are endemic for leprosy. The migrant’s population are deprived of proper living conditions such as safe water, hygienic food, housing, sanitary toilets etc. TLM community hospital was then established as drug delivery point in 1984; situated in the peripheries. Hence various gaps in system need to be strengthened. Make Prevention of impairment and disability services more effectively and efficiently.

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Conclusion: The following observations such as high disability rate among new cases, especially among children, and new cases exhibiting lepra reactions at diagnosis would indicate delayed detection of new cases. The reason for high disability rate among new cases are due to following reasons poor awareness, delayed health seeking behaviour, hidden cases are getting detected late, mismanagement of cases during under treatment period, improper self care practices, non availability of services (such as medications, MDT/ Steroids, appliances including MCP footwear in the peripheries). Hence various gaps in system need to be strengthened. Make Prevention of impairment and disability services more effectively and efficiently.

P-405
Presentation Time: Wednesday 18/09/2013 at 10:30 – 10:40
Abstract Topic Name: Leprosy Control
Presentation Screen Number: 5
Presenter: Qing Zu

KNOWLEDGE AND AWARENESS ON LEPROSY AMONG VILLAGERS IN NANPING CITY, CHINA

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Introduction: In order to carry out publicity of leprosy pertinently, and to improve the awareness of villagers and to provide evidence to develop the “Plan on eliminating leprosy burden in Nanping city (2011-2020) ”, the awareness of leprosy knowledge in villages at low-epidemic status in Nanping city, Fujian was carried out .

Methods: A questionnaire survey was conducted among 1471 villagers and students from 7 villages and towns, where the new leprosy patient was detected in 5 years.

Results: About 42.86% of villagers had seen related publicity materials on leprosy, but for the students the rate was only 3.70%, the difference was statistically significant (X2=68.264, P<0.000). The ways getting knowledge of leprosy were from posters, television and leprosy leaflets in turn. The favorable ways of getting leprosy knowledge were from television and leaflets in turn. The awareness rate of leprosy for villagers were more than school students, the difference was statistically significant (X2=24.800, P<0.000). About 52.38% of the villagers thought the leprosy would not cause disability, 64.29% of them thought it could be hereditary. While 89.63% of the students did not know the treatment is free, 82.22% of them did not know where to get the diagnosis if suspecting leprosy.

Conclusion: Investigation showed that the previous publicity and education of leprosy was focused on the adult, but ignored the students. The ways of publicity and education on leprosy should adopt television, posters and leaflets, and the content should be based on the etiology, infectuousness, symptoms and treatment of leprosy. Giving more publicity and education for the public play a positive role for improving public knowledge and awareness on leprosy.

1Prevention of disability, 2Dermatology, 1Medical officer, 2Medical Superintendent, THE LEPROSY MISSION COMMUNITY HOSPITAL NAND NAGRI DELHI-93, NORTH/EAST DELHI, India

Introduction: The National Capital Territory of Delhi is the fastest growing metropolis in the world with a population of 17 million (2011 census). It attracts a huge migrant population seeking livelihood options from surrounding states which are endemic for leprosy. The migrant’s population are deprived of proper living conditions such as safe water, hygienic food, housing, sanitary toilets etc. TLM community hospital was then established as drug delivery point in 1984; situated in the peripheries. Now the hospital has transformed into a busy community hospital attracting variety of skin, general and sizable number of leprosy cases across the country. It is recognised tertiary care referral centre providing comprehensive care for those leprosy affected such as diagnostic facilities (smears, biopsy, molecular techniques), manage complications like reactions & ulcer, footwear and orthopaedic services. TLM community hospital is the only centre where slit skin smears are available.

Methods: This is a descriptive, observational, and retrospective study in which hospital data on leprosy was analysed. All the suspects and those with cardinal signs were subjected to detailed physical examination (screening for patches and nerves), slit skin smears (SSS), Voluntary Muscle Testing (VMT) after obtaining due content from the patient; those cases that are doubtful were subjected to Histopathological Examination (HPE) as well. The smears were done from routine sites such as ear lobes, forehead, gluteal area plus one over the patch. The smears are fixed, stained, graded and reported following standard procedures. The data on new cases and their smear reports from the medical records department were analysed.

Results: The total numbers of new cases of leprosy detected over 5 yrs period (2008-12) were 1481. On an average 296 new cases have been detected annually. A total of 241 (16%) among new cases had shown WHO grade 1 disability and 191 (13%) had shown WHO grade 2 disabilities respectively. In the year 2012, there is 17 % increase in grade 1 disability and 40% reduction in grade 2 disability on comparing 5 yr average. In 2012 there is a 23% increase in disability (grade 1 & 2 together) on comparing the previous year 2011. A subset of 680 (47%) patients had reactions at the first visit during diagnoses, of which 522 (36%) had T1R / neutils and 158 (11%) had ENLs respectively.

Conclusion: The following observations such as high disability rate among new cases, especially among children, and new cases exhibiting lepra reactions at diagnosis would indicate delayed detection of new cases. The reason for high disability rate among new cases are due to following reasons poor awareness, delayed health seeking behaviour, hidden cases are getting detected late, mismanagement of cases during under treatment period, improper self care practices, non availability of services (such as medications, MDT/ Steroids, appliances including MCP footwear in the peripheries). Hence various gaps in system need to be strengthened. Make Prevention of impairment and disability services more effectively and efficiently.
ASSESSMENT OF ADVERSE EFFECTS TO DRUGS (MINOCICLINE, OFLOXACIN AND CLOFAZIMINE) USED IN ALTERNATIVE MULTIDRUG THERAPY FOR MULTIBACILLAR LEPROSY PATIENTS

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1 Fundação Alfredo da Matta, Manaus, Brazil

Introduction: After introduction of multi-drug therapy (WHO/MDT) there was a decline in prevalence coefficients and new cases detections. However, records of drug resistance and relapse cases are threatening factors against leprosy control. Therefore, the importance of new alternative regimens and the monitoring of adverse effects, avoiding abandonment or irregularity to treatment, are required.

Methods: A prospective, descriptive and observational study, in multibacillary leprosy patients, including cases who developed side-effects to standard WHO MB-MDT drugs and relapse cases, carried out in Fundação Alfredo da Matta, Manaus, Amazonas, Brazil, from April 2010 to January 2012. Side-effects were recorded on every patient file, filled during the course of alternative treatment. The patients received alternative regimen with daily self-administered doses of minocycline 100mg, ofloxacin 400mg and clofazimine 50mg and a monthly supervised dose of clofazimine 300mg for 06 months, following 18 months of daily self-administered doses of ofloxacin 400mg, clofazimine 50mg and monthly supervised dose of clofazimine 300mg.

Results: During research period, 26 patients were treated with alternative regimen. However, due to the Ethical Committee requirements not to include patients older than 65 years, only 21 cases were included in this study. Among these 21 cases, mild and not persistent side-effects occurred in 33.3% of the. From the 37 side effects registered, 45.9% episodes were attributed to ofloxacin, such as abdominal pain, nausea, vomiting, headache and insomnia and 21.6% due to clofazimine; 100% of patients showed skin pigmentation related to clofazimine, however, no side-effects due to minocycline was observed. Mean duration for the development of adverse effects from the start of therapy was 15.22 days. The media interval of follow-up was 13.7 months and 23.8% of patients had already completed the 24 months therapy. All the patients allowed good compliance to treatment and among 15 patients that completed the first treatment year, 14 took 12 doses at 12 months of alternate regimen.

Conclusion: The alternative therapy had a similar feasibility and operational mode compared with WHO MB-MDT, well tolerated with no severe side-effects and good compliance. The side-effects attributed to the drugs components of the alternative regimen were comparable to previous studies, however the importance of this study is supported by the assessment of the combination of these new three drugs No drug was stopped unlike registered in others standard MDT studies which had treatment interruption by side-effects of the drugs components. There was significant correlation (p=0.001) between clinical classification and histopathologic diagnosis of the cases. At the end of first year, there was clinical improvement and bacteriologic index reduction. Nevertheless, it’s necessary a long follow-up and new inclusions of patients viewing to increase the sample to better evaluation of the safety for the alternative regimen and its efficacy.

P-407

LEPROSY AMONG HOUSEHOLD CONTACTS OF LEPROSY RELAPSE CASES IN A REFERENCE CENTER IN MANAUS, BRAZIL

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Introduction: Relapse of leprosy is rare among patients treated with regularly multidrug therapy, but its occurrence should be a warning to health services, being between the reasons given for its occurrence the conviviality in the residence with many people and the presence of a household contact who had or has the disease. Household contacts of leprosy patients are a vulnerable group in the chain epidemiology of the disease, and proximity to blood relationship with an index patient are one of the risk factors associated with clinical leprosy in contacts.

Methods: A descriptive transversal study with quantitative approach was carried out at Fundação Alfredo da Matta (FUAM), reference center for leprosy and other skin diseases. From FUAM database, were collected relapse cases and their household contacts registered between December 2008 and November 2010. A total of 45 cases of relapse and their 160 contacts were registered, of which 29 and their 97 contacts met the eligibility criteria to live in Manaus, and were included in this study. Later on relapse cases were contacted by phone, in person during consultation or through home visits to obtain permission for household contacts examination. Dermatological examination and interview with pre-designed instrument were made at out patient clinic of FUAM or during patients and household home visits.

Results: During the period of the study, a total of 45 cases of relapse and 160 contacts were registered, of which 29 cases of relapse and 97 contacts met the eligibility criteria to live in Manaus, and were included in the study. The majority of relapse cases (72.4%) were male, with a mean age of 42.59 years and 93.1% were multibacillary forms of the disease. Among household contacts 53.6% were female with a mean age of 24.21 years and 47.4% of them were children. Among 97 household contacts 83 (85.6%) had not performed dermatological examination, and 28.9% said they had not been warned by relapse case about the exam. Eight (8.24%) household contacts 8 had been reported cases of leprosy and 2 (2.06%) were new cases. Of the 8 contacts who had the disease 62.5% were female, 62.5% were first-degree relatives of relapse case and 50% were diagnosed with multibacillary forms. A statistical correlation (P-value = 0.008) between being household contact with history of disease and presence of BCG scar was found.

Conclusion: The household contacts are a vulnerable group and early detection, treatment and contact tracing may be important in reducing the burden of leprosy in the community. However, due to difficulties in performing activities of contacts surveillance, it is necessary better communication between the reference centers and basic health units, in order to promote decentralization of service and increase the number of contacts examined.

P-285

PREVALENCE OF M. LEPRAE INFECTION IN ARMADILLOIDS ASSESSED BY SERUM ANTIBODY RESPONSES

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Introduction: Leprosy is a debilitating chronic disease caused by infection with Mycobacterium leprae. Despite the recent reduction in the number of registered worldwide leprosy cases as a result of the widespread use of multi-drug therapy, the number of new cases detected each year remains relatively stable. It is recommended that, to limit nerve damage and the associated disabilities, leprosy diagnosis and treatment be provided as a soon as possible. Currently diagnosis is based on the appearance of clinical signs, however, requiring labor intensive and time consuming clinical, laboratory or histological evaluation. While humans are the main reservoir of M. leprae, in the Americas nine banded armadillos (Dasypus novemcinctus) also act as a reservoir of M. leprae infection model to better understand the progression toward leprosy.

Methods: In this study we examined the antibody responses of using standard ELISA of several antigens previously indicated to have diagnostic potential in humans. The development of these responses was evaluated in experimentally infected animals, then the prevalence of infection in wild armadillos captured in Florida and Georgia was determined.

Results: Surprisingly, antibody responses against the M. leprae specific phenolic glycolipid (PGL-I) and Leprosy IDRI Diagnostic (LID):1 protein antigens correlated poorly and were significantly different in experimentally-infected armadillos. When sera from over 300 wild armadillos caught in the southern region of the United States were analyzed against the combined single molecule LID-NDO, the prevalence of M. leprae infection was found to be over 19%, as determined by antigen-specific immunoglobulin responses over ELISA OD 0.3.

Conclusion: These studies provide insight into the development of antibody responses during M. leprae infection. Our data indicate that a combination of antigens is best suited for identification of M. leprae infection and indicate a very high infection rate within the armadillo population of the southern United States.
P-286
Presentation Time: Wednesday 18/09/2013 at 10:40 – 10:50
Abstract Topic Name: New Diagnostic Tools
Presentation Screen Number: 6
Presenter: Sergey Biketov

DEVELOPMENT OF LF TEST BASED ON SYNTHETIC ANTIGENS FOR THE SEROLOGY OF LEPRAE

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Introduction: Despite the WHO efforts to eliminate leprosy, areas of endemic infection remain in some countries near Russia including Tajikistan and Uzbekistan. Annually millions seasonal workers arrived in Russia from such areas that determined necessity in sensitive and specific diagnostic tests for detecting leprosy at the early stages. In recent years a serological test is considered to be an attractive alternative or supplement to traditional diagnostic methods. It was showed that IgM antibody responses against phenolic glycolipid-I (PGL-I) and IgG antibodies responses against the same proteins of M. leprae can serve as indicators of leprosy. Because serological performances of various M. leprae antigens are quite different it was shown that a combination of antigens is required to provide accurate and early leprosy serodiagnosis. In presenting work neoglycoconjugates which contains both epitopes of recombinant proteins M. leprae and glycolipid PGL-I were created and tested as antigens in ELISA and immunochromatography formats.

Methods: Leprosy patients and healthy donors were recruited at Astrakhan region of Russia and Murthi Badalshahovskaya region of Tajikistan. DNA encoding selected proteins was PCR amplified from M. leprae genomic DNA. The genes were expressed in E.coli strain BL21(DE3) to produce recombinant protein. Recombinant proteins (ML0050, ML0576 and chimeric fusion protein genetically assembled from ML0050, ML0576) were purified with Ni-NTA chromatography. The proteins were used for conjugation with saccharides. The saccharides DMG-AEP and DMG-Rha-AEP were conjugated to proteins by EDC (NHS-sulfo). The saccharide group in terminal end for conjugation with proteins;the saccharides DMG-AEP and DMG-Rha-AEP was consist 83% and 80% appropriately. For PB leprosy patients the sensitivity and specificity of the best results was demonstrated by fusion protein conjugated with disaccharide DMG-Rha-AEP with leprosy patients. By standard ELISA and immunochromatographic tests.

Results: The trials of neoglycoconjugates for serodiagnosis were conducted in the Astrakhan Institute under Leprosy Investigation with using of 60 leprosy patients sera (44MB and 16 PB), 50 healthy donors from endemic regions (EC) and 50 healthy donors who had contact with leprosy patients. Among all tested neoglycoconjugates (based on the recombinant proteins ML0050 and ML0576 conjugated with mono- and disaccharides PGL-1 of Mycobacterium leprae) the best results was demonstrated by fusion protein conjugated with disaccharide DMG-Rha-apiglycid. For MB leprosy patients the sensitivity and specificity of LF test using this conjugate was consist 83% and 83% respectively. For PB leprosy patients the sensitivity and specificity of LF test was consist 55% and 75%.In ELISA this antigen showed similar sensitivity and specificity.

Conclusion: We have developed neoglycoconjugates which contains both epitopes of proteins ML0050-ML0576 and glycolipid PGL-I M.leprae. Testing of such antigen by ELISA and immunochromatography showed possibility to use protein-saccharide conjugates for serology detecting leprosy.

P-349
Presentation Time: Wednesday 18/09/2013 at 10:30 – 10:40
Abstract Topic Name: Experiences of People and Community
Presentation Screen Number: 7
Presenter: Venkata Ranganadha Rao Pemmaraju

LOKDOUTS INTERVENTION IN ADVOCATING HEALTH AND SOCIO-ECONOMIC ISSUES OF PEOPLE AFFECTED BY LEPROSY

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1leprosy, lepra india, hyderabad, India
2Experiences of People and Community

Introduction: People affected by leprosy are often unaware that the disease is treatable or how to access treatment. The delay in diagnosis and treatment may lead to ulcers and irreversible deformities. Therefore advocating health and socio-economic issues among the people affected by leprosy becomes very important. People from the same community can communicate effectively. So Chetana (meaning initiatives to make things happen), was conceptualized involving people from leprosy affected families, living in the communities served by LEPRA referral centers. They are called Lokdouts (meaning messengers). The issues related to the activities of daily life of people living in the community were discussed. Some of the identified problems were addressed.

Methods: A house to house survey was done looking at the medical needs in the community. The colonies have 300 houses with 425 families with a population of 1392, of whom 365 are leprosy affected, 284 with deformities and 166 with ulcers. 6 Lokdouts from same community were identified, trained and motivated to promote information about leprosy and its existing service. Lokdouts worked living in the community by supporting people affected in accessing services and improving their quality of life. Support groups were also formed for self care practices in the community.

In the process of project evaluation, the improvements in quality of life of community inmates after Lokdout intervention was evaluated and part of project is results.

Results: To address the health related issues, camps were conducted in collaboration with the Govt Medical Health staff. Lokdouts assisted Chetana project in creating awareness about the health camps in people affected by leprosy. 92 (41 Male, 51 Female) out of 208 inmates were diagnosed with the hypertension and Diabetes. They were facilitated to take medicines from nearest Government hospitals. In the DPMR camps, the Lokdouts and Chetana staff taught the colony inmates about the importance of self care and usage of foot wear to reduce and heal ulcers. During the period of intervention, ulcers healed in 22 clients while ulcers reduced in 31 clients. To reduce social stigma within the community, many events involving youth from the community were conducted. To increase health awareness in the community Anti Leprosy day, World Disability day, World sight day were observed. Chetana with the help of Lokdouts identified 49 disability patients unable to walk and provided wheel chairs to 10 of them, crusts (15), walkers (4) and hand sticks (20). The Lokdouts facilitated the colony inmates to get ARV cards (271), ration cards (8), pensions (66), train passes (26), bus passes (14), medical certificates (14) and gas connections (20). To improve the economic status of the community, livelihood trainings like motor car driving, computer training, tailoring, candle making were provided helping them to earn jobs.

Conclusion: With the involvement of inmates in planning and implementation, Lokdouts advocated the community people about the services. The project helped the disability patients to get the disability pensions by addressing the issue at concerned district level officers.Listening to the advice of Lokdouts; the clients with plantar ulcers are preventing their ulcers by using MCR footwear and practicing selfcare. The youth from colonies up graded their skills by attending various seminars and trainings.
THE SOCIO-ECONOMIC SITUATION OF LEPROSY SETTLEMENTS IN SOUTH-EASTERN NIGERIA: A RAPID APPRAISAL

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Medico-socio project, German Leprosy & TB Relief Association, Nigeria, Enugu, Nigeria

Introduction: For centuries, leprosy was stigmatized largely because of hideous deformities that complicate late or untreated leprosy. Prior to discovery of the sulphones in the 1940s, there was no effective treatment for leprosy. Consequently, public health authorities all over the world resorted to strict segregation practices to contain the spread of the disease. In keeping with global practice at the time, the first leprosy settlement was established in Nigeria in 1928 in Itu, Akwa-Ibom state by Presbyterian Missionaries. Subsequently, government and several other Christian denominations set up additional settlements across Nigeria. They include: Uzuakol, Oji River, Ekpere Obom, Osossi, Mkar and Garkida. These settlements flourished at that time owing to active collaboration between the donor missions abroad and the local authorities. Indeed, many of these settlements also served as research centres. In addition to medical care, residents of these settlements were provided with social and vocational rehabilitation. The government and various agencies provided them with funds for feeding, drugs, shelter, clothing and basic education. In 1992, the Federal Ministry of Health announced that “leprosy settlements as such has ceased to exist”. In the last two decades, government funding of these institutions has declined and in many cases ceased altogether. As a consequence, the residents rely on irregular and inadequate support for livelihood from individuals and civil society groups. This situation has resulted in an increase in the proportion of PALs who had resorted to begging as a means of livelihood. To systematically appraise the current state of residents in the settlements, GLRA embarked on a rapid survey of three of these settlements in south-eastern Nigeria.

Methods: A descriptive, cross-sectional study was conducted among PALs in Uzuakol, Oji River and Mile Four leprosy settlements in southeast Nigeria. Pre-tested interviewer administered questionnaires were used. A total of 150 PALs participated in the study. Data analysis was done using SPSS version 16.0 and results presented as percentages.

Results: Sources of income for PALs were: begging and charity handouts, 63.3%; monthly stipends (welfare), 12.7%; other sources such as mernal jobs, 24%. The economic situation of PALs was rated as good, moderate and poor by 14.7%, 28.7% and 56.6% respectively. 81% of respondents freely participate in the social activities of the community. Healthcare, potable water and good toilet facilities were accessible to 61%, 95% and 63% of PALs respectively. Poor housing condition was reported by 44% of PALs. Almost all (99%) attributed the provision of food, feeding, drugs, shelter, clothing and basic education.

Conclusion: The study shows most residents of the leprosy settlements resort to begging and charity hand-outs for their livelihood. We recommend that a comprehensive survey of all leprosy settlements in Nigeria be conducted and the result be used to inform policy on rehabilitation of PALs.

5. Eliminating social stigma and discrimination against HD

4. Promoting public awareness program

2. Participation in the policy-making program

1. Recovery of human rights with full dignity

4. Providing medical care to HD infected patients

3. Establishing Special schools for HD infected children

THE PAINSTAKING EFFORTS FOR HUMAN RIGHTS WITH DIGNITY IN KOREA

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Introduction: The challenges on Hansen’s disease (HD) related issues generally known as leprosy are best met only by the people affected by HD with rich experience. The opportunity to face the challenges by themselves is top priority in eliminating HD itself and promoting many other problems regarding HD. Based on this productive spirit, Hanvit Welfare Association (HWA) has provided the people socio-economical rehabilitation programs such as Resettlement Village Movement. HWA in accordance with Civil Law 32 is Korea’s only NGO representing persons affected by HD and our family to promote the human rights and welfare. Without our get together organization, we could not do anything to achieve today’s programs in Korea. The future will be realized when we are get together with our whole heart and positive involvement.

Methods: In 1950’s those affected by HD even after cure were rejected by everybody including their immediate family members. There was no choice but being forced out of home begging for food, from door to door, for our survival even though we were physically able to work. It was thought that if we could get together and unite our effort to get something started to support ourselves, instead of begging, it could provide for support ourselves, restore our human dignity and avoid the civil complaints for begging on streets. However, there were no places for our economic activities but the deserted mountain areas isolated from the general public were only available. With a little seed money received from the Korean government, Christian communities and foreign charitable organizations, we were able to begin raising pigs or chickens. The economic programs at the Resettlement Village were managed by ex patients only.

Results:

1. Recovery of human rights with full dignity

2. Participation in the policy-making program

3. Revising the law and improving the welfare system of the HD patients

4. Promoting public awareness program

5. Eliminating social stigma and discrimination against HD

Conclusion: Under the management of HWA together with those affected by HD, livestock-farming supported by the Korean government was evaluated as a success to achieve self-sufficiency in the world. It is estimated that desire for wealth greatly increases our spirit for life. Without the organization to represent those affected by HD, we didn’t have a growth engine for seeking self-reliance with human dignity. Centering on HWA, we were able to unite and gain the cohesive power to protect our rights. It is important to pool wisdom with many members of those affected by HD in order that we may start many programs. This is why organization like HWA should be established to achieve human rights with dignity in other countries. It seems that Korea should be a role model for many HD prevalent countries in the world.

BLOOD CLOT ABNORMALITY IN LEPROSY PATIENTS

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Introduction: The response to infections may be accompanied by systemic changes in lipid metabolism and the coagulation cascade. Here, we investigate the nature of a well-known lipid-like mass formed just above the blood clot during lepromatous patient serum harvesting. The main point of the present work was to understand the composition and origin of this lipid mass, herein called as lepromin mass.

Methods: We followed serum harvesting from approximately 2,000 patients and contacts that was conducted by the leprosy ambulatory Souza Araujo in Rio de Janeiro, Brazil (Fiocruz Foundation). We performed High Performance Thin Layer chromatography (HPTLC) to analyze the lipids of the lepromin mass, whereas the clot’s proteins were analyzed by 2D-Eletrophoresis and Mass spectrometry. We measured IgM and IgG against cardiolipin, and acylation and lipase parameters in a group of patients blood.

Results: 38 patients presented the lepromin mass in their blood, all of them belonging to the lepromatous pole of the disease, with a high incidence of erythema nodosum lepromatous (ENL). HPTLC analysis showed phospholipid levels similar to the observed in normal blood clot, and a higher amount of neutral lipids: mainly cholesterol ester and triglycerides. Differential proteomic analysis demonstrates that the lepromin mass is a true fibrin clot, and its distinct origin can be attributed to the blood HDL apolipoprotein fraction and a glycosaminoglycan (GAG), that is most likely dermatan sulfate, probably originated from tissue damage. The majority of the identified proteins are represented by fibrinogen and immunoglobulin, among others. Although coagulation parameters such as prothrombin time (PT) presents normal results in these patients, fibrinogen, D-dimers and anti-cardiolipin IgM presents alarming high levels.

Conclusion: Our results show an exacerbation of intravascular coagulation process in LN patients, especially in those that were on progression to Erythema Nodosum Leprosum (ENL). The involvement of immune complexes anti-cardiolipin is being investigated.

MATERIAL AND METHODS

Reagents: All other reagents were purchased from commercial sources. Antiproteinase-3 (anti-P3) IgG was purchased from R&D Systems (Minneapolis, USA).

RESULTS

The interference of anti-P3 IgG with the assay was evaluated using the commercial polyclonal anti-P3 IgG at antibody concentrations of 3, 10, 30, 100, 300, and 1000 ng/mL. A nonlinear regression approach was used to determine the IC50 value. We used the GraphPad Prism program for this analysis.

CONCLUSIONS

The results of this study demonstrated that anti-P3 IgG interferes with the ELISA assay for proteinase-3. This interference may lead to false-negative results in the assay. Further studies are needed to investigate the mechanism of interference and to develop methods to mitigate it.
Introduction: Background. M. leprae is still uncultivable up to present, therefore genomic studies of this bacillus are conducted mostly by molecular biology approach. The Variable Number of Tandem Repeat (VNTR) methods has been used for this purpose. One of these, the TTC repeats counting technique could be used for the study of different strain or sub-strain of M. leprae. This is a case report of multiply leprosy cases in a family with different M.leprae genomic types based on TTC repeats.

Methods: Case. A family, mother, 35 years old with chief complain pain erythematous nodule on almost all over her body since 2 years ago. The nodules were broken and become ulcer accompanied with pain and fever. She was diagnosed as Leprosy Lepromatous type with Lucio Phenomenon. Her husband, 36 years old were also diagnosed as Leprosy Tuberculoid type with white anesthetic patches on his right and left cheeks since 6 months ago. Her daughter, 4 years old was diagnosed as Indeterminate Leprosy due to white small patches on her left cheek, left arm and left upper leg, no complain about anesthetic sensation. ELISA, histopathology examination and PCR for detection of M. leprae were performed. The result of PCR were positive for all of them. After sequencing of the TTC area, it revealed that the number of TTC repeats from the mother’s isolate was 16 times, while her husband’s isolate was 18 times and surprisingly, the daughter’s isolate showed only 13 times of TTC repeats.

Results: Discussion. Family with leprosy living in the same house. Transmission from mother as the index case of transmission to others was suspected. Based on the TTC study proving infection of M. leprae with different genotyping. Means there were different sources between each of them. It could be from other leprosy patients or from the environment (non-human resources of M.leprae). Further study is required.

Conclusion: Although household contacts in leprosy is the high risk group to be affected, the source of M.leprae infection in multiple leprosy cases in a family is not always due to one source of infection, but other sources of M.leprae infection should be considered.
The experience of illness and treatment in leprosy: The learning of medical students from the patient's perspective using the McGill illness narrative interview (MINI)

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Introduction: The current curriculum of medical school of Federal University of Rio de Janeiro is based on the biomedical and hospital model. The “Des(Mancha)” Brazil Project is a university wide committee, composed of researchers from various areas, and a one month training programme for the students about the epidemiological reality in poor communities. Brazil is the second country in the world in number of leprosy cases and students have the opportunity to know many actions of this important endemic region. One activity of the project was the implementation of MINI for the students learn about the experience of illness and treatment of patients affected by leprosy in view of person-centered medicine. The purpose of this study was to analyze the contribution of MINI performed by undergraduate students of the School Medicine in understanding the experience of illness and treatment of persons affected by leprosy.

Methods: MINI was used by students of medical school from third to tenth periods working in Des (Mancha) Brazil Project for training narrative hearing skills. The interviews were recorded, transcribed and discussed during seminars.

Results: 40 interviews were performed and allowed students to understand the complexity of the interview process with patients. Results shows an important suffering and stigma started during the leprosy diagnosis including post multidrug therapy treatment when patients are considered cured by World Health Organization.

Conclusion: The application MINI allowed the knowledge of the experience of illness and treatment of patient’s perspective. It’s an important tool for undergraduate students to understand the dimension and care from the patient’s perspective beyond the biomedical model.

Efficacy of one month training in physical management of impairment and disability in leprosy for physiotherapy students

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Introduction: Leprosy is eliminated from India in 2005. But still about 100,000 to 120,000 new leprosy cases are reported in India. After achieving the target of elimination of leprosy, leprosy services are now being integrated into the general health services. Physiotherapy services play a very vital role in the all the levels of the intervention in leprosy services. In order to provide the physiotherapy services in leprosy, a one month training programme is conducted at the TLM community hospital for undergraduate students of physical therapy.

The main objective of this study is to find out the efficacy of the one month training programme for students, which is conducted in TLM Community Hospital Vandnagari Delhi-93.

Methods: All the undergraduate students of physical therapy, who attended the training from March 2009 to march 2012, were included in the study. Total of 370 students attended the training out of which 111 were males and 259 were females. A pre and post outcome measure of the training programme was assessed for the students. Pre assessment evaluation was carried out at the beginning of the training programme and same was administered at the end of the training programme. The evaluation questionnaire was consisted of the multiple choice test of 100 questionnaires, assessing the knowledge base on anatomy of hand and foot, signs and symptoms of leprosy, surgical aspects, splinting and community based rehabilitation and biomechanics. But practical test was carried out at the end of training programme only.

Results: To test the efficacy of the training programme in relation to each subject a paired sample t test was administered to the pre and post test results. Significant difference was found in the anatomy subject, suggesting that students have improved their knowledge and skills in this subject. Significant difference was also found in pre and post scores of the biomechanics, surgical rehabilitation, splinting and community based rehabilitation. The overall total scores was found to be significant (p<0.001), suggesting that overall learning was significantly higher. To conclude, overall learning in the training programme is very high, specific learning in each subject may be less. Students scored an average of 70% in the post training practical exam.

Conclusion: This study was attempted to find out the efficacy of the one month training programme, results of the study shows significant improvement in the overall learning in various aspects. This difference suggests that good exposure of theoretical aspects is the baseline for development of the good practical aspects. Further from the study it can also be concluded that there is marked improvement in the performance of the students in terms of efficiency and decision making capacity. Therefore it can be concluded from the study that one month training has an impact on the learning of the students.
INTRODUCTION: The leprosy is a contagious chronic disease causing permanent disability in patients. Therefore, it has been a crucial problem for public health, economics and society. Disability causation in leprosy mainly is from delay treatment. Hence, this study aimed to determining the effectiveness of application of social marketing and social support for promoting health seeking behavior of leprosy contact cases.

METHODS: This study was quasi-experimental research. Samples of the study were 96 persons, 48 being the experimental group and 48 being the comparison group. Analysis of community, communication channels, quality of health seeking, perceived of leprosy and collected data to plan for application of social marketing and social support for promoting health seeking behavior of experimental group. They were produced media, test media.

RESULTS: The influential media for Leprosy awareness were people media (health volunteer) 43.10 % and Cutout media 27.59%. After intervention Leprosy awareness of target group significantly increase than before intervention(p-value< 0.001) and significantly more than control group and % Cutout media 27.59%. After intervention Leprosy awareness of target group significantly increase than before intervention(p-value< 0.001).

CONCLUSION: The result from promotion of Leprosy health care seeking behavior experiment can be used in planning of Leprosy Health education and proper media producing which go along with community life style and also persuade leprosy patient to get medical care before disability come out.
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Presentation Time:   Wednesday 18/09/2013 at 12:40 – 12:50
Abstract Topic Name: Surgical Rehabilitation
Presentation Screen Number: 1
Presenter: Thanatpong Thienwuttiwong

COMPARATIVE EFFECTIVE NESS OF NEURITIS IN LEPROSY PATIENTS BY SENSORY TESTING WITH BALL PEN AND MONOFILAMENT

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Introduction: Leprosy is a chronic infectious disease caused by Mycobacterium leprae. It causes impairment of motor, sensory, or autonomic function. Nerve functions impairment is the key pathological process leading to disability and handicap. Early detection and treatment of nerve function impairment is of paramount importance in leprosy.

Methods: All data in this study are collected from 34 leprosy patients who attended the leprosy OPD Buriram hospital from 1st July 2008 to 30th April 2010. Ball pen and monofilament was applied to palm (10 points) and sole (12 points) on both sides. Data was analyzed and present by percentage and Exact Mc neemar test.

Results: Sixty-seven percent of them were male eighty-eight percent were classified as multibacillary leprosy and age-distribution were 5.69 and 76.64 percent among age group below 16 years and 16-60 years respectively. As for their occupation, 58.82 percent were farmer while 26.67 percent were labor. Results of the study revealed that impairment of sensory function of median, ulnar and posterior tibial nerve tested by monofilament were 33.35, 35.29 and 38.34 percent respectively, meanwhile ball pen test yielded 5.55, 2.04 and 8.82 percent respectively. Overall findings indicated that effectiveness of diagnosis of neuritis tested by monofilament was 2.6 times higher than that by ball pen (47.06 vs 17.60 percent) with statistically difference (p<0.02).

Conclusion: The effectiveness and sensitivity of sensory testing by monofilament is higher than ball pen 2.6 folds. Substantial levels of underdiagnosis of dermatosensory loss with the ball pen were observed.

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Presentation Time: Wednesday 18/09/2013 at 12:50 – 13:00
Abstract Topic Name: Surgical Rehabilitation
Presentation Screen Number: 1
Presenter: Thania Cordiero

POSTURAL BALANCE CONTROL OF THE LEPROSY PATIENT WITH PLANTAR SENSITIVITY IMPAIRMENT

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Introduction: Leprosy is a granulomatous disease that affects the peripheral nervous system, mainly sensory fibers. To evaluate the sensitivity and detection of leprosy neuropathy the Semmes-Weinstein sensitivity test (SWtest) is widely used as an essential tool to control physical therapy. The aim of this study was to determine the effectiveness of lasso surgery using half of the FDS for correction of claw finger deformities in leprosy. For several years, the full Flexor Digitorum Superficialis (FDS) tendon of the ring or middle finger was used to correct the 4 finger claw hand. Now, some surgeons use only 1 slip of the middle finger FDS tendon, divided into four slips and a lasso insertion used to correct claw fingers. There is an apprehension that removal of full FDS increases the risk of sublimis minus deformity and reduces the overall grip strength after surgery.

Conclusion: The half FDS gives comparable results in terms of function and appearance with minimal incidence of sublimis minus deformity and is a useful tool in the arsenal of leprosy surgeons to correct the claw hand without causing any secondary deformity.

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Abstract Topic Name: Surgical Rehabilitation
Presentation Screen Number: 1
Presenter: Pankaj Gupta

SPLINTING MATERIAL USED FOR IMMOBILISATION IN A RESOURCE LIMITED SETTING

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Introduction: Non-governmental organizations working for the rehabilitation and treatment of patients affected by leprosy are dependent on donations for implementation of their programmes. Their financial situation has direct impact on the quality of services and appliances which are being provided for the people affected by leprosy. Deformities of the eye, hand and foot occur in people affected by leprosy due to damage of the peripheral nerves, leading to paralysis, atrophy and contracture of muscles supplied by these nerves. These deformities need proper medical and therapeutic treatment. Splinting is one of the most important components of the treatment.

Methods: This article is based on direct observation of the current practices of splint fabrication in various organizations involved in the rehabilitation and treatment of the leprosy patients and others who have similar conditions.
on the basis of interviews with therapists who are involved in the fabrication of the splints for leprosy patients.

Results: Various materials are being used for splinting in different set ups. Materials range from wood, bamboo sticks, aluminium sheets, leather, cotton felt (material used for padding), rubber bands, rivets, leather, high temperature thermoplastics, plaster of paris, low temperature thermoplastics, microrubber and many others. Though these large varieties of material are available for splint fabrication the selection of the appropriate material for fabrication of each individual splint depend upon many factors. Most often it is the cost and not the efficacy which is the deciding factor in favour of particular splinting material in resource limited centres. Sometimes splints is required only for brief periods of time, like cylindrical splints which are applied daily and, applied with plaster of paris. But if a splint is to be applied for ulnar neuritis then low temperature thermoplastic is an ideal material.

Conclusion: This review gives an overview and insight into the judicious selection of material for splinting in a resource limited set up in terms of cost and its effectiveness. From this study it can be concluded that selection of material for splinting depend upon various factors. But in resource limited set up where patients are unable to pay for the services, selection of material depends mainly on cost and its efficacy and durability is considered secondarily.

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Abstract Topic Name: Surgical Rehabilitation
Presentation Screen Number: 3
Presenter: Sajid Husain

ADIPOCUTANEOUS FLAP TO RESTORE FULLNESS OF 1ST WEB SPACE DEPRESSION

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2 Plastic Surgery, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India

Introduction: The leprosy is a disease which mainly affects the skin and nerves. When the nerves are involved they give rise to deformity of particular part due to paralysis of muscles as well as sensory loss. In ulcer nerve palsy, the muscles adductor pollicis and 1st dorsal interosseous also get atrophied. Since these muscles give fullness to 1st web space, the atrophy of these muscles results in hollowing of 1st web space producing visible deformity. Correction of finger clawing makes the deformity more obvious when the patients opens up his hand fully or shakes hand to some one. This makes the patients more conscious about his web space deformity

Methods: The surgeons have tried silicon gel injections, autologous fat graft, and Dermograft to fill this depression with varying degree of success. Keeping all this in mind we planned an Adipocutaneous flap based on cephalic vein or its major tributary from radial side of lower forearm to fill the depression of 1st web space. The graft is taken from the mid radial border of the fore arm by a small longitudinal incision and transferd to the depression of the first web space underneath the skin

Results: 49 cases were operated by this procedure in last 5 years. 46 case showed good results and improved appearance and in 1 case the deformity recurred. While in 2 cases the parasitical absorption of the graft is noted in last 5years follow up.

Conclusion: Adipocutaneous flap based on cephalic vein or its major tributary from radial side of lower forearm to fill the depression of 1st web space PROVES THE BETTER RESULTS THEN THE CONVENTIONAL SURGICAL METHODS.

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Presentation Time: Wednesday 18/09/2013 at 13:30 – 13:40
Abstract Topic Name: Surgical Rehabilitation
Presentation Screen Number: 3
Presenter: Sreepuram Reddy

RESTITUTION OF OPPOSITION OF THE THUMB BY FLEXOR CARPI ULNARIS TRANSFER IN CASE OF LOW MEDIAN PARALYSIS

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Introduction: Ulnar Nerve Paralysis and combined paralysis of Ulnar and Median Nerves occurs commonly in Leprosy patients. A radial palsy is relatively uncommon. In Leprosy a radial nerve palsy is often associated with median and / or Ulnar Palsy. Many combinations of tendon transfers have been developed for the treatment of Ulnar Palsy and Ulnar median palsy. For surgical correction of Ulnar Low Median Nerve Paralyis which is combined with Partial Radial Paralysis the number of Motor Tendons available for successful transfer is often considerably reduced.

Methods: In one such case where also the Palmis Longus was absent, weak extensors 3+ on the MRC Scale and who had already undergone Lasso operation using ring and middle finger Flexor Digitorum Superficialis (FDS) as motor for Lumbrical Replacement elsewhere at a private hospital we at Sivananda Rehabilitation Home, Kukapally, Hyderabad did an innovative surgical procedure using Flexor Carpi Ulnaris for Opponens Replacement using Fasciae Latae Free Graft according to Brand’s anastomosis technique. Yet, instead of a Y insertion for opponents replacement according to Brand Fritsch’s method we used a triple insertion for the thumb correction according to Benes.A.O. 1985 which worked extremely well restoring opposition of the thumb. The pre-operative management, anaesthesia and torniquet are the same as for the operations described for correction of claw fingers and restoring opposition of the thumb.

Post-operative rehabilitation for tendon transfer in connection with Flexor Carpi Ulnaris transfer requires the same sequence and timings as followed in Brand Frisch’s procedure.

Results: Re-education for this tendon transfer is relatively easy. No secondary impairment seen at the wrist.

Good satisfaction for the patient at the end of four weeks post operative physiotherapy with good Abduction and Adduction with three finger pinch.

The whole presentation will be illustrated with pre & post and intraoperational figures.

Conclusion: The excellent result encourages us to do this type of procedure when the same above conditions occur.

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Presentation Time: Wednesday 18/09/2013 at 13:40 – 13:50
Abstract Topic Name: Surgical Rehabilitation
Presentation Screen Number: 1
Presenter: Sajid Husain

RECONSTRUCTION OF MODERATELY DEPRESSED NOSE IN LEPROSY

S. Husain 1,2
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2 Plastic Surgery, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India

Introduction: The nasal deformity in leprosy is synonymous to the disease. It is a significant cosmetic and social problem to the patient. The mycobacterium lepare directly infiltrate the septal cartilage of the nose, the recurrent inflammation and secondary infection results in absorption of septal cartilage and collapse of the nasal bridge. The turbinates, septum and nasal spine are the Fiat structure to be destroyed. The nasal bones and lateral cartilages are affected later.

The most popular method for correction of nose in leprosy is the one described by Antia et al (3). This is a two stage procedure in which a split skin graft is applied to the cavity of nose to replace the lost mucosal lining and an acrylic prosthesis is inserted into it to give a shape to the nose. At a second stage a bone graft is put in to a pocket, dissected between the outer skin and mucosa.

Methods: The second metatarsal was removed from the donor foot by longitudinal incision in the space between 1st and 2nd toe over the dorsum of foot. The graft was shaped as required. A semi lunar glabellar incision was given to create a pocket between two layers of the nasal skin and for the columella support an additional incision was made in vestibule to create a pocket in columella. The straight graft was introduced in to the Pocket through the glabellar incision while an L shaped graft was positioned on the spine through the vestibular incision. The external splinting was done by a plaster cast. The nasal splint is kept for 3-4 weeks postoperatively.

Results: Early Results: All cases had good correction of the depressed nose with minimal complication like serious collection and reaction to skin suture at nasal side while haematoma formation at the donor foot side was seen.

Long term follows up: Fifty seven cases had been operated by this procedure during 1984-2003. Only forty eight cases were available for review at various intervals (3-24 months). The 26 patients reported total satisfactory outcome while 22 patients had various complaints.

Conclusion: Our procedure is one stage and simple, it satisfies the requirements of patients. Nasal contour fits with the facial outlook, no removal or cleaning is needed every day. Hence we recommend this precedence clinically subsided and smear negative cases for correction of mild and moderate saddle nose deformity which are more frequently seen these days in leprosy endemic areas.
Methods: The necessary data for the study was collected from (sample) patients who attended the community hospital during the period of 1 year (1st January to 30th December 2012), were interviewed regarding the reasons for their unwillingness to undergo tendon transfer surgery. Total 111 patients were interviewed during the period. Interview was based on the predesigned format, having the closed ended questions. During the interview patients' views were also recorded. All the interviews were taken by the physiotherapists who were given orientations for the interview.

Results: Various myths were found to be prevalent among the leprosy patients regarding the tendon transfers. Myths which were found to be prevalent among the patients were, decrease in muscle power of the operated hand or foot, development of new deformity after the surgery, difficulty in doing activities of daily living after the surgery, may have impact on their current job in muscle power of the operated hand or foot, and nearly 60% of the patients were of the opinion that surgery will have impact on the current job profile, nearly 40% were of the opinion that surgery will lead to development of new deformity.

Conclusion: There are various reasons due to which leprosy patients are not willing to undergo tendon transfers and patients form their opinion from the prevalent myths in the society. Patients are also apprehensive and reluctant to undergo tendon transfer considering the complications of the tendon transfer surgeries. Therefore pre-operative counselling of the patients has a very important. Further pre-operative surgical assessment and counselling by therapist and surgeon has a vital role to play in breaking these prevalent myths among the leprosy patients regarding tendon transfer surgeries.

Results: During the first on-site visit in May 1998 128 leprosy patients were registered in Turkmenistan by one leprologist, who took care of all patients. Four in patients lived completely isolated from other people in the leprosarium Hodcha. 124 out-patients lived about 700 km far away in the Lake-Aral region in Dashovus and Boldumras. All patients were treated with monotherapy (Dapsone), 16 patients were put on MDT in 1998. During the second on-site visit in July 2011, only dermatologists looked after the patients. The only leprologist was retired in 2001. The leprosarium Hodcha was closed in 2001 and four remaining patients were transferred to Dashovus.

In Turkmenistan there is no leprologist who would look after the patients. The MDT from the 16 patients was not finished. It is not clear, if the other patients were treated with MDT.

Conclusion: Leprophobia is most deeply rooted in Turkmenistan than in other countries in central Asia. Turkmenistan needs two leprologists. Their task should be to look at all patients, to examine the contact persons of registered patients, to prevent the patients from disabilities and to train dermatologists and general doctors in leprosy.

Factors Preventing Leprosy Patients with Deformities from Undergoing Tendon Transfer Surgery.

Methods: The necessary data for the study was collected from (sample) patients who attended the community hospital during the period of 1 year (1st January to 30th December 2012), were interviewed regarding the reasons for their unwillingness to undergo tendon transfer surgery. Total 111 patients were interviewed during the period. Interview was based on the predesigned format, having the closed ended questions. During the interview patients' views were also recorded. All the interviews were taken by the physiotherapists who were given orientations for the interview.

Results: Various myths were found to be prevalent among the leprosy patients regarding the tendon transfers. Myths which were found to be prevalent among the patients were, decrease in muscle power of the operated hand or foot, development of new deformity after the surgery, difficulty in doing activities of daily living after the surgery, may have impact on their current job profile, may have to change the current job, scar present after the surgery will also have impact on the social life. Out these myths nearly 80% of patients were of the opinion that there will be decrease in power of the operated hand or foot after the surgery, and nearly 60% of the patients were of the opinion that surgery will have impact on the current job profile, nearly 40% were of the opinion that surgery will lead to development of new deformity.

Conclusion: There are various reasons due to which leprosy patients are not willing to undergo tendon transfers and patients form their opinion from the prevalent myths in the society. Patients are also apprehensive and reluctant to undergo tendon transfer considering the complications of the tendon transfer surgeries. Therefore pre-operative counselling of the patients has a very important. Further pre-operative surgical assessment and counselling by therapist and surgeon has a vital role to play in breaking these prevalent myths among the leprosy patients regarding tendon transfer surgeries.

Changing the Leprosy Situation in Turkmenistan between 1998 and 2011

Introduction: Turkmenistan is located in the north of the Lake-Aral region. In the south it borders with Iran and Tajikistan, in the east with Uzbekistan. At the beginning of the 20th century the number of leprosy patients in Turkmenistan required a hospitalisation of approximately 100 patients. For this reason the Leprosarium Hodcha, was founded in 1928. It was located between Turkmenistan and Iran and did not belong to either of the two countries.

Methods: Description of the leprosy situation in Turkmenistan between May 1998 and July 2011: A description from two on-site visits.

Results: During the first on-site visit in May 1998 128 leprosy patients were registered in Turkmenistan by one leprologist, who took care of all patients. Four in patients lived completely isolated from other people in the leprosarium Hodcha. 124 out-patients lived about 700 km far away in the Lake-Aral region in Dashovus and Boldumras. All patients were treated with monotherapy (Dapsone), 16 patients were put on MDT in 1998. During the second on-site visit in July 2011, only dermatologists looked after the patients. The only leprologist was retired in 2001. The leprosarium Hodcha was closed in 2001 and four remaining patients were transferred to Dashovus.

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Factors Preventing Leprosy Patients with Deformities from Undergoing Tendon Transfer Surgery.
Results: Anti leprosy activities include:
1. regular monitoring of all focus of leprosy
2. annual inspection of the contact persons of leprosy
3. organizing seminars, lectures, prevention and early detection of leprosy
4. in-treatment, visual inspection and examination of patients
5. carried out physical and social rehabilitation of patients.

Karakalpak Republic Leprosarium capacity for 80 beds, consists of two departments located from each other at 35 km.

1. Stationary department is designed for 65 beds, it's located on the banks of the Amu Darya in the village Kutschurgan, 45 km from Nukus city.
2. Outpatient department with stationary chambers to 15 beds, epidemiological department and ambulatory office is in Shorkul village, 13 km from Nukus city.

There are 305 patients, 1850 contact, 1128 focus of leprosy in all.
Karakalpak Republic Leprosarium is an integrated organizational structure of medical, social and psychological assistance to leprosy patients of Karakalpakstan. However, condition of the material and technical base, provision of medical services does not meet modern requirements. Patients live in panel houses built in 1957. Medical facilities are old and require permanent repair. There is no central water supply, water from underwater sources does not correspond to health and safety standards. By time electricity, there is no gas supply too. All the buildings need major repairs.

Outpatient department is in Shorkul village, it’s 600 meters from the main road. It is intended for 15 beds and needs major repair or demolition.

Conclusion: To further enhance the effectiveness of treatment activities, providing high quality care of leprosy patients and in accordance with modern requirements and standards, prompt access to medical care we propose:
1. to build medical diagnostic and research corps for 50 patients in Shorkul village, combined inpatient and outpatient departments.
2. to equip it with modern laboratory diagnostics and medical equipment.

P-182
Presentation Time:   Wednesday 18/09/2013 13:00 – 13:10
Abstract Topic Name:   Epidemiological Surveillance
Presentation Screen Number:  2
Presenter:   Yuriy Rybak

LEPROSY IN UKRAINE

Y. Rybak 1,*, V. Dukio 2

1Ukrainian leprosarium, Kutschurgan, Ukraine, 2Leprosy Research Institute Astrakhan, Russian Federation, Astrakhan, Russian Federation

Introduction: Ukraine is located in east europe, south-east of the black sea.
Until recently Ukraine was a republic of the former Soviet Union, is now an independent state.
This has caused great changes in the country.

Methods: Within an area of 601,000 square kilometres, 420 cases of leprosy were detected from 1900 to 2000, of which 68% were MB leprosy cases and 32% PB cases.
At the moment there are 19 leprosy patients altogether, 1 is MB and 18 are PB patients.
All of them suffer from complications.

Results: Within the last ten years 1 new leprosy patient was found. He came along to the Leprosarium Kutschurgan from east Ukraine, because his mother was treated in Kutschurgan 20 years before.
In 1997 the MDT therapy was introduced. All patients were put on MDT. Prior to this year the patients a monotherapy (Dapsone).

Conclusion: There is necessary to train dermatologists and general doctors in leprosy especial in the endemic regions in Ukraine.
Therefore the “New atlas of leprosy”, Sasakawa memorial health foundation will be translated in Ukrainian language and distributed in all regions of Ukraine.
It had help to existing, but unil now not dedected leprosy patients.

P-185
Abstract Topic Name:   Epidemiological Surveillance
Presentation Screen Number:  2
Presenter:   V. K. Jain

EPIDEMIOLOGICAL TRENDS OF LEPROSY IN A TERTIARY HEALTH CENTRE IN NORTH INDIA: A 10 YEARS RETROSPECTIVE STUDY

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Introduction: The study of changing outlook and presentation of the disease is important always.

Methods: We used a simple model to simulate the control of leprosy based only on infectious cases treatment. A simple SEIE - susceptible, exposed, infectious, and exposed – can express some main features of leprosy dynamics. The model only includes infectious cases and the assumptions were (1) persons are born susceptible; (2) susceptible are infected by contact with an infectious case; (3) once infected, i.e. in the exposed class, persons may became infectious with no disease.

Results: 562 patients attended the leprosy clinic with males: female ratio of 3.4:1. Majority of the patients i.e. 187 (33%) were in the middle age group (21-30 years), 57 (10%) were children aged <15 years. Borderline tuberculoid leprosy was the most common diagnosis found in 250 patients. Three patients had histoid leprosy.

Conclusion: Knowledge and understanding of the epidemiological profile is an important pre requisite to assess and address public health needs in the country and to enable efficient planning, programme and management.

P-186
Abstract Topic Name:   Epidemiological Surveillance
Presentation Screen Number:  2
Presenter:   Maria Lucia Penna

ERADICATION OF LEPROSY: HOW LONG WOULD IT TAKE IF THERE WERE A PERFECT CONTROL?

M. L. F. Penna 1,*

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Introduction: A world without leprosy is the final objective of leprosy control. Mathematical models are tools for understanding the control of infectious diseases effects. They are based on known features of the natural history of the disease.
Until recently Ukraine was a republic of the former Soviet Union, is now an independent state.
This has caused great changes in the country.

Methods: We used a simple model to simulate the control of leprosy based only on infectious cases treatment. A simple SEIE - susceptible, exposed, infectious, and exposed – can express some main features of leprosy dynamics. The model only includes infectious cases and the assumptions were (1) persons are born susceptible; (2) susceptible are infected by contact with an infectious case; (3) once infected, i.e. in the exposed class, persons may become infectious with no disease.

Results: If expressed in numbers the model will not reach an equilibrium state because the population usually increases, but if the classes are transformed in proportions of a dynamic population, the model will reach equilibrium with constant point prevalence.

Conclusion: The simulation described above is a tool for thinking about the control measures impact. In the real world, human populations do not live the same socioeconomic environment during a century. Better living stands and food supply change the transmission parameter and the disease development rate contributing further for leprosy decrease, but we should not expect a very fast decrease.
In India Multi Drug therapy (MDT) arrived in the year 1981, and was tested successfully in two pilot projects. The National Leprosy Control Program (NLP) was then re-designated as the National Leprosy Eradication Program (NLEP), and was launched in 1983, having MDT as the core enabler. On 1 April, 2004, vertical services of leprosy were integrated with the General Health Services and emphasis was given to the capacity building of the general health workers, to identify the cases and to treat them. As on December 2007, the prevalence rate in India was 0.72/10,000 population. Still India has 55%, of the global case load. Bihar has implemented MDT in 2 districts in 1983 and full state has been covered with MDT in 1996-97. Bihar is still registering nearly 20000 new cases each year since last six year.

Methods: Internal analysis has been made of 5 year Annual report of Bihar from 2007 to 2012, which has been submitted to Govt. of India. Data and records were verified according to the indicators.

Results: Analysis of the data and record verification revealed that there was a decrease in the prevalence rate of leprosy, but it had not reached the elimination status in the State. The MB ratio had decreased. The disability ratio had also decreased in five years. MDT was available for more than 3 months for all the cases at any point of time. But the child proportion among new cases remained consistent for the last five years, which are more than 16%. Annual New Case Detection Rate among Schedule cast and Schedule tribe are more than 265 of total cases, where ever population are only 16% of total population.

Conclusion: The National Leprosy Elimination Program had a favorable impact, but at the same time to reach the elimination status there was a need for more stringent Information, Education, and Communication (IEC) activities to be promoted in the community. Active surveillance should be initiated so that hidden cases are not missed in the community. Special action plan is required for Schedule Cast/Schedule tribe population. School survey / Quiz programme in school will help to detect early cases with children.

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Presentation Time: Wednesday 18/09/2013 at 13:50 – 14:00
Abstract Topic Name: Epidemiological Surveillance
Presentation Screen Number: 2
Presenter: Abraham Selvasekar

EPIDEMIOLOGICAL ANALYSIS OF 5 yr TREND OF NEW LEPROSY CASES DETECTED (2008-12) AT TLM COMMUNITY HOSPITAL NANDAGRI, NATIONAL CAPITAL TERRITORY OF DELHI

S. Abraham 1 , I. I. Horo 1 , S. Muthu Pilla 1 , M. Sethi 1 , A. Tiwar 1 , S. Rajan 1 , L. Gorai 1 , S. Ajith 1 , P. Peter 1 , J. Marsh 1 , S. Rajan 1

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Introduction: NCT of Delhi is the fastest growing metropolis in the world with a population of 17 million (2011 census). The city attracts a huge migrant population seeking livelihood from the nearby weaker states such as Bihar, UP, Jharkhand etc, which are endemic for leprosy. The migrant's population are subjected to harsh living conditions, deprived of basic amenities like safe water, hygienic food, housing, sanitary toilets etc. They are exposed to harsh climatic conditions. TLM community hospital was established in the year 1984 and recognised as tertiary care centre for leprosy services. The only urban centre of its kinds focusing on leprosy services attracting huge number of different leprosy cases.

Methods: This is a descriptive, observational, and retrospective study in which hospital data on leprosy was analysed. The data on new cases reporting to the Out Patient Department was analysed meticulously. Details of physical examination (screening for patches and nerves), skin smears, Voluntary Muscle Testing, and Histopathological Examination were recorded. Previous patient 's data was retrieved from Hospital Information System of TLM Community hospital. Thethada was interpreted with the following variables at the time of diagnosis: new cases by sex and age, history of contact with leprosy case, grouping, and presence of nerve involvement, reactions, disability and smear positivity from the routine sites.

Results: The total numbers of new leprosy cases detected over a 5 yr period (2008-12) are 1457. Of which 1266 (87%) were multi-bacillary (MB) leprosy. The adult female is proportion is 19% (n=237) of total population which was reduced to 16% (n=201) in 2012. The child female proportion is 14% (n=17) in 2008 which increased to 20% (n=48 in 2012). It had increased by two times to reach 20.3 (n= 48 in 2012) whereas nationally it was 9.7 (2012). The child male proportion was 14.8(n=18) in March 2009 before annual active case detection drive. However, there was only one case of grade 2 disability recorded (2011) for the same period despite the active case detection drive (special activity plan) of house to house survey (for 10 days) carried out in the last 2 years. The disability proportion was in the range of 2% to 3% for the last five years, which is more than 16%. Annual New Case Detection Rate among Schedule cast and Schedule tribe are more than 265 of total cases, where ever population are only 16% of total population.

Conclusion: The National Leprosy Elimination Program had a favorable impact, but at the same time to reach the elimination status there was a need for more stringent Information, Education, and Communication (IEC) activities to be promoted in the community. Active surveillance should be initiated so that hidden cases are not missed in the community. Special action plan is required for Schedule Cast/Schedule tribe population. School survey / Quiz programme in school will help to detect early cases with children.
A Madagascar, nous avons dans un premier temps essayé de moduler les prédominance de cas MB et un fort taux d’infirmité. Il nous est apparu nécessaire dans ce pays, prévalence. Or, pour la Lèpre, on rapporte généralement les données d’incidence et de prévalence lorsqu’ils parlent du poids de la maladie, on se rapporte à des estimations d’incidence ou de prévalence.

Pour beaucoup de maladies infectieuses (VIH/SIDA, Tuberculose, Paludisme etc.), Madagascar améliorant l’accès aux soins.

A Madagascar, nous avons dans un premier temps essayé de moduler les prédominance de cas MB et un fort taux d’infirmité. Il nous est apparu nécessaire dans ce pays, prévalence. Or, pour la Lèpre, on rapporte généralement les données d’incidence et de prévalence lorsqu’ils parlent du poids de la maladie, on se rapporte à des estimations d’incidence ou de prévalence.

Conclusion: Nous avons constaté que les données rapportées dans les pays d’Afrique subsaharienne étaient basées sur des estimations et non sur des données d’incidence ou de prévalence. La mise en place de systèmes de détection étaient peu performants et la prise en charge de la Lèpre était insuffisante.

Ainsi, trois stratégies ont été testées :

• une première stratégie consistait à intégrer le dépistage passif de la Lèpre dans des stratégies d’équipe mobile travaillant pour un dépistage et un traitement avancé de la Tuberculose, dans des zones peu couvertes par le système de soin.
• une deuxième stratégie consistait à s’associer, dans une zone de faible prévalence de la Lèpre, à une enquête domiciliaire de santé publique basée sur des interrogatoires des familles, et proposant un dispensaire mobile afin de motiver les interrogatoires à répondre à des questionnaires. Nous avons simplement assuré la présence d’un personnel compétent en dermatologie/lèpre dans ce dispensaire mobile.
• la troisième stratégie consistait à effectuer un dépistage avancé, en ciblant des zones rurales où auparavant plusieurs cas de Lèpre avaient été dépistés ces dix dernières années, et de rechercher d’éventuels nouveaux cas chez les contacts.

Résultats: Les données préliminaires montrent que lorsque l’accès au soin est amélioré par des stratégies de soins plus proximales, tant en zones de faible endémie qu’en zones de forte endémie, le dépistage de la Lèpre est sensiblement augmenté, et parfois plus que double. Certaines stratégies demeurent néanmoins peu efficaces et sont difficiles à retenir, tandis que d’autres, bien intégrées, peuvent s’avérer rentables, dans un processus d’élaboration du dépistage précoce visant à la réduction du taux d’infirmité lié à la Lèpre.

Les données préliminaires montrent que lorsque l’accès au soin est amélioré par des stratégies de soins plus proximales, tant en zones de faible endémie qu’en zones de forte endémie, le dépistage de la Lèpre est sensiblement augmenté, et parfois plus que double. Certaines stratégies demeurent néanmoins peu efficaces et sont difficiles à retenir, tandis que d’autres, bien intégrées, peuvent s’avérer rentables, dans un processus d’élaboration du dépistage précoce visant à la réduction du taux d’infirmité lié à la Lèpre.

Conclusion: La stratégie passive de dépistage de la Lèpre paraît peu efficace dès lors que:

• les personnels de santé n’ont pas plus confrontés à suffisamment de cas pour maintenir une compétence minimale par le dépistage;
• les malades et leurs familles manquent de motivation et d’accès aux soins pour une consultation de dermatologie pour laquelle le ressenti de mortalité est faible.

M. Cisse 1, 1

1social, DAHW, Dakar, Senegal

Introduction: The LEPROSY VILLAGE has 36 former leprosy patients and their families, has been founded in 1936, like the other leprosy village, to accommodate people affected by leprosy. Leprosy, particularly contagious, controlled at the time gave rise to the fear and mistrust between communities. The closure and separation wall erected around reflected salience of prejudice. The closure and separation wall erected around reflected salience of prejudice. The closure and separation wall erected around reflected salience of prejudice. The closure and separation wall erected around reflected salience of prejudice.

Relying on progress in treatment and social support, actors, through multi-sectorial action officers (IEC, advocacy, empowerment, etc) have been reducing the barrier of prejudice and begin the phase of integration. This experience, almost unprecedented deserves that it stops there for out the highlights.

Methods:

• a PRA (participatory research method active) and a perception study of attitudes which showed the existence of social prejudices against cultural Pals
• Comparative study of poverty levels (infrastructure, economic, social) who found the extreme poverty of Pals and their families from the middle
• Setting gauge action information, education and communication to the populations of two communities
• Advocacy and involvement of local authorities and administratives
• Spatial planning and allocation of land title
• Implementation of projects inclusive and unifying

Résultats: social and cultural development: improving social relations between the two communities Redevelopement physical space with pathways dropping all environmental barriers, which has increased the attractiveness of the town economic: income improvement through projects funded (bank, cereals, porky projects, millet mill)

Institutional: improving the perception of the authorities towards the inhabitants of the village and is new recognized as a part of the city.

Conclusion: The experience shows the need for a preparation of the population and the construction of a consensus before the redevelopment of the physical space. The experience has also highlighted the need to anticipate the impact of social transformations as carriers of new needs and new aspirations. About the entities marked by decades of mistrust and mutual fear, they accompanied the wall fence and separation established to bear witness to the significance of prejudices. Thanks to the process made in the treatment and social support of patients, and especially, thanks to support and training of populations, the reluctance have been overcome, allowing the opening of the integration with communities.
P-310
Presentation Time: Wednesday 18/09/2013 at 13:00 -13:10
Abstract Topic Name: Human Rights and Discrimination
Presentation Screen Number: 3
Presenter: Maria Eugenia Noviski Gallo

THE BRAZILIAN GOVERNMENT ACKNOWLEDGES THE VIOLATION OF RIGHTS REGARDING THE ISOLATION OF PERSONS AFFECTED BY LEPROSY

L. R. Maciel 1,*, M. E. N. Gallo 1, M. L. W. D. R. Oliveira 1, M. R. Ledur 1, W. Nogueira 1, S. Dias 1, G. G. Silva 1, F. Silva 1, D. Cruz 1, A. Souza 1

1Casa de Oswaldo Cruz, Instituto Oswaldo Cruz, Fundação Oswaldo Cruz, 2Faculdade de Medicina, UFRJ, Rio de Janeiro, 3SEDH, SDH, Brasilia, Brazil

Introduction: The official compulsory isolation of persons affected by leprosy by Ministry of Health (MOH-Brasil) was triggered in 1933 and ended in 1962. However, despite the National Program of Leprosy norms regarding colonies reforming and out patients treatment recommendations, many cases were referred to the old colonies due to “social reasons”. Also, many isolated patients did not want to leave from the community area of their colonies, which is defended by the patients movement (MORHAN). As a result the MOH norms from 1986 were considered a date of real change in this policy. A working group was created in November 2006 with the aim of drawing up an inventory of the situation and needs of residents in ex Sanatoriums, Instituted to the Interministerial Commission Assessment (ICA) and, through Law No. 11.520/2007, granting special monthly pension, to lifetime people affected by leprosy colony and long hospitalizing. The findings should be taken into consideration to formulate plan of action in order encourage people affected by leprosy to attend local health service under insurance policy.

Results: The meetings began in September 2007 and continue to be held every 15 days at the offices of the Human Rights Secretariat of the Presidency of the Republic in Brasilia. Until December 2012 one hundred eighty four (184) were reported, voted and granted 8,500 and 2,185 members of the Commission present at the meeting, deliberate and agree or disagree with the conclusion of the members give new approaches to better procedural instruction.

Conclusions: Although it was found that local health service under insurance health policy were ready to provide care for persons affected by leprosy, but the clients was still prefer to directly attend the service of RPSI because of its reputation, expertise and understanding RPSI providers, and long hospitalizing. The finding is considered to formulate plan of action in order encourage people affected by leprosy to attend local health service under insurance policy.

P-311
Abstract Topic Name: Human Rights and Discrimination
Presentation Screen Number: 3
Presenter: Charniya Soinumtip

THE ASSESSMENT OF HEALTH SERVICES FOR PERSONS AFFECTED BY LEPROSY IN LEPROSY COLONIES UNDER THE HEALTH INSURANCE SCHEME : UNIVERSAL COVERAGE.

C. Soinumtip 1,*, 1P. Thanyakitlikul 1, N. srinikumb 1

1Nurse Department, Raj pracha Samasai institue, Thailand, Ampur PraPradang, Thailand

Introduction: According to the health insurance policy which had been implemented since the year 2000, persons affected by leprosy had to attend the primary care service nearby their places, and will be referred to specialized service in case of complications. After the policy implementation, it was found that the persons affected by leprosy had not attended health care service nearby their houses. They directly attended Raj Pracha Samasai Institute (RPSI), specialized unit, at central level

However the health insurance policy was important and had to be carried out continuously. Therefore, it is necessary to evaluate health services for persons affected by leprosy living leprosy colony. This study was done to assess the health care services persons affected by leprosy living leprosy colonies under health insurance policy.

Methods: CIPP Model of Daniel L. Stufflebeam was adjusted as an evaluation framework. It consists of 4 evaluation aspects: context, input, process, and product. Thenumber of 383 study subjects were decision makers, service providers, health care clients, persons affected by leprosy who were living in leprosy colonies and their families. The study was conducted between 2011 and 2012.

Results:

1) Context:it was found that health care provided by local health services covered target group and responded to the needs of persons affected by leprosy who lived in leprosy colony. Local health providers aware of the health problems of persons affected by leprosy.

2) Input: administrators understood the situation of persons affected by leprosy who lived in leprosy colony. Some persons affected did not understand their rights in attending health care under universal coverage policy. Most of community members did not stigmatize and were willing to help persons affected by leprosy. Local health services were ready to provide care and build confidence of the clients.

3) Process: local health services were able to provide coverage care to their clients particularly persons affected by leprosy. Leprosy referral system was available and efficiently responded to the clients' needs.

4) Output: The reasons for directly attending the health care at RPSI were the good reputation of the RPSI in terms of the leprosy expertise, providers understanding in their disability and needs, the possibility of long hospitalizing until they were completely cured. This was different from the local hospital under health insurance where long hospitalizing was impossible because of overcrowded clients. After discharging from local hospital, persons affected by leprosy had to travel from home to primary health service for ulcer care on daily bases until completely cure. This was difficult for them who were old poor and had disability.

Conclusion: Although it was found that local health service under insurance health policy were ready to provide care for persons affected by leprosy, but the clients was still prefer to directly attend the service of RPSI because of its reputation, expertise and understanding RPSI providers, and long hospitalizing. The findings should be taken into consideration to formulate plan of action in order encourage people affected by leprosy to attend local health service under insurance health policy.

P-312
Abstract Topic Name: Human Rights and Discrimination
Presentation Screen Number: 3
Presenter: Mr David Jaganathan

IMPACT OF SELF ADVOCACY GROUPS IN ACCESSING RESOURCES

J. Asnathnam 1,*, T. Mendas 1, B. S. Berry 1

1Disability Rights through NGO Networking, The Leprosy Mission Trust India, Tiruvannamalai, India

Introduction: A study done in the district of Tiruvannamalai in 2002 highlighted the deplorable condition of people affected by leprosy and general disabilities, who account for 2% of the total population of the district. Previously this was an Leprosy endemic district in Tamil Nadu and those with disabilities had no or limited access to mainstream education, health and other services. The Disability Rights through NGO (Non Governmental Organisation) Networking Project was initiated in 2009 by the Leprosy Mission Trust India in Tiruvannamalai District of Tamilnadu, India to promote equal opportunities and participation for people affected by leprosy and other general disabilities. Through the Project Interventions, individuals with disabilities have been facilitated to form Federations at the village/Block and District level. They were empowered to participate in the developmental activities which were promoted.

Methods: 15 villages in each block were selected based on the number of persons affected with Leprosy and Disability in the block and intervention was planned. The project period was 2009 – 2012. During the intervention, persons with disability were empowered through periodical training to take up issues at the panchayat level and to take the unsolved issues to the block and district level. The Leprosy Mission project staff played a facilitating role. A predesigned questionnaire regarding the available rights and entitlements that were accessed and the impact created was, designed and administered by trained volunteers. The data obtained was analysed.

Results: 90 % of the Persons with Disability were empowered to access the needed entitlements independently through the Village level Advocacy groups. Now the District level Federation is registered as “Tiruvannamalai District Federation for the differently Ailed”. The Persons with Disability have internalised their rights and entitlements and learnt to participate in all the activities of the Community. This has brought a change in the attitudes of the community in the target area. The Panchayat leaders in Tiruvannamalai District were influenced by the members of these groups, by their attendance at Grama Sabha meeting and discussions with the Panchayat president. The District Level federation has become visible in the District and is being sought after by district administration for data and other assistance regarding people with disability.

Conclusion: The Village self advocacy groups have become empowered to take up issues and to solve them by approaching the concerned authorities. They exercise their rights and do not wait on the mercy of the authorities and thus they live with dignity; this project model can be used in other areas with similar problems.

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P-313
Presentation Time: Wednesday 18/09/2013 at 13:30 – 13:40
Abstract Topic Name: Human Rights and Discrimination
Presentation Screen Number: 3
Presenter: Dr. Sadanand Bag

IMPACT OF LEPROSY RELATED DISCRIMINATORY LAWS ON THE SOCIO-ECONOMIC AND POLITICAL LIFE OF THE PEOPLE AFFECTED LEPROSY

S. Bag 1, R. Sandeep 2, A. Patra 1, K. Rebecca 2

1CALL, 2Community Development, The Leprosy Mission Trust India, NOIDA, India

Introduction: Although leprosy has been proved to be curable with Multi Drug Therapy (MDT), millions of people and their family members still suffer from psycho-social discrimination, which has been culturally prevalent, and affects the economic and political situations of the people affected by leprosy. While any prevalent cultural practice often has traditional legal support, in India. There are about 58 national and State level laws with direct/indirect discriminatory provisions against people affected by leprosy and these laws allow leprosy as a ground for divorce, restricting from travel by public transport facilities and obtaining driving licenses, etc. thus preventing the leprosy affected persons from enjoying their common civil facilities. It is therefore felt essential, prior to take any action against the existing anti-leprosy laws, to understand the nature and degree of discrimination experienced by the leprosy affected and it's association with the existing laws. In order to understand the impact of anti-leprosy laws on the socio-economic and political life of the people affected leprosy, a qualitative study of leprosy affected individuals has been carried out.

Methods: Considering the high prevalence of leprosy two states viz. Uttar Pradesh and Chhattisgarh of India were selected as the universe of the study. A total of 3850 individuals affected by leprosy, from 11 districts of both the states were interviewed using an in-depth interview schedule.

Results: It was found that around 71.14% people affected by leprosy in both the states (78.51% from Uttar Pradesh and 62.29% from Chhattisgarh) were not aware about their rights relating to health, employment, education, voting and contesting in election. Around 79.50% people in both the States were not aware about any laws and policies related to leprosy and more than 90% people did not know about any laws and policies that protect and promote their rights. Around 91.48% people from both the states were also found to be not aware about the laws, policies and Government Orders that discriminate against persons affected by leprosy.

Conclusion: The most difficult challenge faced by people affected by leprosy today is not from anti-leprosy laws, rather how to meet their day-to-day needs since they are poor, illiterate and incapable to work. Majority of them are not aware about any discriminatory law related to leprosy. However, there is a greater need to make them understand their rights and entitlements and to dispel their own personal fear and stigma associated with leprosy. At the same time, efforts need to be undertaken on the parts of the civil society organisations to make them aware about anti-leprosy laws; build up their leadership qualities to raise their voices to repeal/amend all the discriminatory legislations that stand on the way of their equality and dignity as individuals of this country. Because any one with malafide intension may make use of these laws and harass them.

Results: Highlights of the findings show that 37.59% (46.20% from UP and 26.63% from CG) are of the opinion that people affected by leprosy should not be allowed to marry, whereas 15.63% (26.68% from UP and 2.36% from CG) argued that people affected by leprosy should not be allowed to cast his/her vote. About 29.54% (44.97% from UP and 9.92% from CG) mentioned that people affected by leprosy should not be allowed to participate in social functions.

Conclusion: That the stigma associated with leprosy has started fading from the minds of the common people as there is some awareness relating to the disease-leprosy, although the process is very slow. There is a greater need for using innovative methods involving community to accelerate the process of social change towards stigma reduction.

P-314
Presentation Time: Wednesday 18/09/2013 at 13:40 – 13:50
Abstract Topic Name: Human Rights and Discrimination
Presentation Screen Number: 3
Presenter: Dr. Sadanand Bag

COMMUNITY PERCEPTIONS AND ATTITUDES TOWARDS PEOPLE AFFECTED BY LEPROSY

B. Sadanand 1, R. Sandeep 2, A. Patra 1, K. Rebecca 2

1CALL, 2Community Development, The Leprosy Mission Trust India, NOIDA, India

Introduction: Success of any health programme depends on people’s participation in the programme and also in the case of National Leprosy Elimination Programmes (NLEP). Perceptions and attitudes of the community are the most prominent factors that determine the participation of the people, which need to be well understood to promote positive behavioural change of the community members towards successful participation in the NLEP. In order to find out peoples’ perceptions and attitudes towards people affected by leprosy in India, a qualitative study has been taken up.

Methods: A total of 870 individuals, comprising of village leaders, government officials, teachers, panchayat members, legislators, NGO workers, etc. have been interviewed from Uttar Pradesh (UP) and Chhattisgarh (CG) States of India. This study was undertaken as a baseline assessment for an interventional project intended to reduce social and legal discrimination faced by people affected by leprosy and promote changes in the existing anti-leprosy laws in India.

Results: The study has shown that community perceptions about people affected by leprosy vary widely. While some communities have a negative view, others are more accepting and supportive. There is a need for community-based interventions to address these perceptions and attitudes.

Conclusion: Community-based interventions are necessary to change community perceptions and attitudes towards people affected by leprosy. Such interventions should focus on raising awareness, dispelling myths, and promoting a positive attitude towards people living with leprosy.

P-248
Presentation Time: Wednesday 18/09/2013 at 12:30 – 12:40
Abstract Topic Name: Prevention of Disability
Presentation Screen Number: 4
Presenter: Shivakumar Mugudalabetta

MOBILISING COMMUNITY THROUGH CIVIL SOCIETY ORGANISATIONS TO SUPPORT LEPROSY SERVICES IN BIHAR, INDIA: EXPERIENCE FROM A PILOT PROJECT

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Introduction: Bihar is one of the three states in India yet to achieve the goal of elimination of leprosy and every year contributing around 15% of the new leprosy cases. There is slight decline in new case detection from the year 2010. Implementation of Disability Prevention and Medical Rehabilitation (DFPR) services is still a major challenge. There is a need to intensify the efforts for further reduction of leprosy burden and support leprosy services with greater involvement of community.

Methods: Damien Foundation India has initiated a pilot project to support leprosy services in Gaya and Nalanda districts of Bihar in partnership with nine local Non Government Organizations (NGO). These NGOs are mainly involved in rural development, women empowerment through self help groups, education of school drop outs and child laborers. Field coordinators selected the NGOs, trained them in self care and suspect referral, and established coordination with government health system. The field coordinators supervise and monitor these local NGOs. They are responsible for the collection of monthly reports. The intervention includes updating the list of persons affected by leprosy with disabilities; follow up and counsel the patients to practice self care; refer suspects and patients with complications to Primary Health Centre; support patients
under treatment; identify, provide and monitor the livelihood support of needy affected persons and facilitate to receive government entitlements. Retrospective data was collected from local NGOs and general health system and interviews with the civil society partners were done to understand the challenges perceived by them.

Results: The local NGOs were able to update the list of persons affected by leprosy with disability. From the initial list of 1138 persons affected by leprosy with disabilities, after addition (292) and deletions (200), the final list had 1230 persons with leprosy related disability. The new case detection has been increased by 6.6% (128/190) when compared to the data six months before the implementation, the female cases increased by 15.4% (114/740) while there was 12.7% (48/378) rise in detection of child cases. About 35% of total persons affected by leprosy with disability were practising self care regularly. The proportion of persons with plantar ulcers has declined by 7%. Out of 308 suspects referred to PHC by the local NGOs, about 90 were confirmed leprosy after involvement of local NGOs in the field there is remarkable change in the attitude and perspective of the other general population towards the leprosy affected persons.

Conclusion: Even with the weak infrastructure and network of these local NGOs, the short term results are encouraging. The strategy need to be critically examined for its sustainability and long term impact on leprosy services.

P-249
Presentation Time: Wednesday 19/09/2013 at 12:40 – 12:50
Abstract Topic Name: Prevention of Disability
Presentation Screen Number: 4
Presenter: Eliane Ignotti

PHYSICAL DISABILITIES BY LEPROSY: A SYSTEMATIC REVIEW OF THE DETERMINING FACTORS
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Introduction: The physical disabilities in leprosy characterize a large portion of the burden of the disease. The analysis of determinants and its importance on the disabilities as described in the literature are reported in this study. To review the scientific literature related to the occurrence of physical disabilities in leprosy and its determining factors in the year 2011.

Methods: A systematic review in electronic databases scientific, by descriptors relating to disabilities resulting from leprosy and its determining factors. The combination of words in their respective databases (Scielo, PubMed, LILACS, PHPQ, WHOIS, ADOLEC, BDEINF, EQUIDAB, MEDLINE), were: a) “Incacidade Hanseníase” (leprosy disability, incapacity leprosy), b) “Incacidade Hanseníase” (leprosy disability, incapacity leprosy and Hansen’s leprosy), c) “Hanseníase Diagnóstico Tardio Incapacidades Físicas” (Late Diagnosis of Leprosy physical disability, Diagnóstico Tardio de La Lepra Incapacidades Físicas), d) “Hanseníase Sequelados” (leprosy sequelae, Hansen’s leprosy sequelae), e) “Hanseníase Incapacidades Físicas Grau II” (leprosy physical disability degree II, Hansen’s leprosy incapacity physical degree II), f) “Hanseníase Sequelados” (leprosy sequelae, Hansen’s leprosy sequelae).

Results: We conducted searches in portuguese, english and spanish. The studies were carried out in Brazil (22), China (01), Thailand (01), Ethiopia (01) Nepal (02), India (07). Of a total of 34 (thirty-four) original articles included in revision (1), the study shows the correlation between the quality of life with five factors: late diagnosis, multibacillary reactions, disability grade II in the diagnosis and prejudice, 19 (nineteen) articles present the percentage of incapacity of grade II in different stages of treatment or after discharge, 12 (twelve) articles present the percentage of degrees 0 and I of disability in patients with leprosy. For the most important risk factors for disability at the time of diagnosis were, in descending order: male, dimorphous clinical form, more than one affected nerve, age greater than or equal to 15 years, classification multibacillary, no schooling, tuberculoid form, socioeconomic factors, detection mode through the examination of collectivity, race, 1 to 3 years of studies, late diagnosis, occupation labor, smear-positive presence of more than 5 skin lesions, civil status.

Conclusion: A patient male, presenting more than one affected nerve, adults, multibacillary, with no schooling, and late diagnosis, would have major probability of development of physical disability in leprosy. It is recommended that the identification of the risk factors associated with the presence of disabilities constitute an important approach at the time of diagnosis of the disease, because it allows planning and prioritizing actions directed to the treatment and monitoring the patient that presents a high risk to develop the physical disability.

P-250
Presentation Time: Wednesday 18/09/2013 at 12:50 – 13:00
Abstract Topic Name: Prevention of Disability
Presentation Screen Number: 4
Presenter: Sudhakar Bandypadhyay

REACHING THE UNREACHED: DPMR SERVICES IN A TRIBAL AREA
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1Piyari Foundation-India Trust, 2Gandhi Memorial Leprosy Foundation, Balarampur, Purulia, India

Introduction: Disability Prevention and Medical Rehabilitation is an important area of Leprosy Elimination Program in India and efforts and priority are given since last one decade. The introduction of MDT has reduced considerable degree of impairment and deformity. Yet the existing deformity is multifarious, in terms of physical, social and psychological aspects. The degree of stigma depends on the degree of deformity/disability. DPMR program indicates prevention in all the steps. Since DPMR activities are the priority area of Gandhi Memorial Leprosy Foundation, Balarampur, Purulia, a retrospective study was conducted for 10 years from 2003 to 2012. The Unit operates in the hilly, forest and rivers surrounded Tribal area, covers around 400,000 populations in 341 villages in 3 rural blocks, 112 villages on the hills with meager communication facilities. The initial prevalence rate during the monotherapy era was 230/10,000 in 1978 which was subsequently been brought down to 6.6/10,000 in 2003 and subsequently it was 5.4 / 10,000 in 2012.

Methods: The interventions aimed at detection of early cases without deformity, to improvise the early deformities (G1) that not leads to G2, to stop further deterioration of the G2 deformed cases and to improvise & to make functional of G2 deformities/disabilities. Specific interventions designed and undertaken in community, individual and family levels with specific reasons of development of deformity/disability and remedy thereof, Individual Patient education/ counselling, self care demonstration and practices, education of patients’ family members to ensure their participation and acceptance. The activities were undertaken in coordination with the Government system, local self Government and community leadership. Information disseminated for Pre –primary, Primary, Secondary and Tertiary levels for usefulness and process of exercise, timing and tapering of Steroids, care of hands, Feet and Eye reconstuction surgery. For variant cultural aspects, awareness programs, family and individual interactions were conducted with cultural inputs, folk media and local-dialects.

Results: During the 10 years period, total 2589 (MB-929, PB-1666) new cases detected, average 259/yr, Total G1, G2 among new cases 133 (G1-107, G2-26), average 13/year. Total G1, G2 cases served including backlog were 8,837, total cases improved 1237 (14%), remained static 7436 (84.2%), and worsened 164 (1.8%). Total 107 patients had undergone reconstructive surgery. The physical, psycho social and economic factors for worsening of deformities/disabilities were documented including hard labour for income generation and livelihood, poverty, frustration and carelessness, concealment due to stigma and self stigmatisation. The combination of medical and social intervention helped the affected persons to trust on the program and the services were accepted by them.

Conclusion: DPMR program has to be conducted to meet the specific needs of the individual patients, education of family members to ensure familial cooperation and acceptance, community as a whole for new case detection without deformity. Livelihood of the patients below poverty line is of utmost necessity to avoid hard labour, begging and undue movement which are the hindrances to DPMR activities. Deformity in Leprosy has social, Psychological and financial implications and adversely affects the social – psychology. Hence, methodical and successful DPMR activities also contribute to social change.

P-251
Presentation Time: Wednesday 18/09/2013 at 13:00 – 13:10
Abstract Topic Name: Prevention of Disability
Presentation Screen Number: 4
Presenter: Akslaya Mishra

PREVENTION OF IMPAIRMENT AND DISABILITY (POID) THROUGH EARLY CASE DETECTION AND TREATMENT: FAIRMED’S (FM) PILOT PROJECT IN ANDHRA PRADESH (AP)
A. K. Mishra 1, V. Simonet 1, T. Von Slamm 1, T. Gass 1, J. K. George 1
1Technical, Swiss Emmaus Leprosy Relief Work India, Gurgaon, India, 2Technical, Former Director (Projects), FAIRMED, Bern, Switzerland, 3CEO, Swiss Emmaus Leprosy Relief Work India, Gurgaon, India

Introduction: Following elimination of Leprosy at the country level in 2005, the priority of the National Leprosy Eradication Program (NLEP) has shifted to Prevention of Impairment and disability (POID). With this revised mandate of NLEP, FM implemented the POID project with focus on strengthening primary health care (PHC) system and early diagnosis.
S. N. Pati 1, E. Rao 1, D. Porichha 1

STRENGTHENING DISABILITY CARE IN GENERAL HEALTH SYSTEM THROUGH REFERRAL CENTRES IN ODISHA

Methods: The 3 years pilot project was implemented in two high burden districts of Andhra Pradesh (Guntur) and Orissa (Ganjam) from 2010 in collaboration with Government of Andhra Pradesh and 2 FM supported local Non-Government Organization (NGO) partners. Besides other capacity building initiatives for the PHC staff, the Accredited Social Health Activists (ASHA) workers were provided orientation in order to identify the ‘Leprosy suspects’ and refer them to the PHC. A line-list all of the cases was generated for each PHC and cases were monitored for deformity with appropriate treatment being provided. A special emphasis was given to Nerve Function Assessment (NFA) for all the new cases every month. Two mobile teams with counsellor and physiotherapist visited all the PHCs every quarter to counsel the patients, train them on self-care, screen for disabilities, refer the needy patients for ulcer care, RCS or reaction/reaction management and ultimately build the capacity of the PHC staff in the provision of the POID services. The Leprosy affected persons were also screened for cataract that was appropriately managed.

Results: Total 200 PHCs have been covered. During the initiation of the project there were around 7,000 old leprosy patients with disability and during the last 2 years around 2,800 new confirmed cases have been diagnosed and treated with multidrug treatment (MDT). Among the new cases, a total 71 (2.6%) cases were with grade-1 disability and 114 (4.1%) cases with grade-2 disability, taking the overall disability rate to 6.6% in both the districts. The remaining 93.4% of the cases were with grade 0 disability. Overall in both the districts, the proportion of confirmed new cases referred by ASHA workers increased from 25% to 40% in the last 2 years. By the end of 2nd year there has been a decline in grade-1 disability rate at both the districts. In both Guntur and East Godavari districts the PoID rate has been maintained at around 4.0% to 5.0%. Similarly the grade-2 disability rate in Guntur has come down from 6.6% to 4.5% and that in East Godavari district it is almost at the same level in the last 2 years (2.55 – 2.77).

Conclusion: The PoID project has been instrumental in strengthening and complementing the delivery of NLEP services in the project districts. Besides the project also addressed a few important areas like eye care, improving accessibility for social welfare benefits provided by Government and NGOs and promoting community based rehabilitation through formation of integrated Self Help Groups (SHG). The key factors for success in the project are the involvement of the ASHA workers and the district level monitoring through line listing of all the cases. This pilot project has been moulded in such a way that it can be promoted as a sustainable and replicable model in all the districts of the country for prevention of impairment and disability among leprosy patients.

P-253

Abstract Topic Name: Prevention of Disability
Presentation Screen Number: 4
Presenter: Dr Surendra Pati

MANAGEMENT OF PLANTAR ULCERS

E. I. Shats 1,*, V. Duiko 1

ACTUAL ASPECTS OF REHABILITATION OF LEPROSY PATIENTS IN RUSSIA

A. Shah 1, N. A. Shah 2

1Director, Managing Director, Novarts Comprehensive Leprosy Care Association, Mumbai, India

Introduction: Over the years a systematic approach has been developed by Novarts Comprehensive Leprosy Care Association to manage the problem of plantar ulcers in the field area. In the camp, where cases with ulcers are brought for treatment, those not amenable to self care are identified and referred for surgery. Others are given specially designed self-care kit developed and pioneered by NLCLA.

Methods: Self-care Kit consists of scraper to scrape and clean the plantar skin, antiseptic solution as add on for soaking the feet, antiseptic cream to apply to wound, moisturizing cream for the rest of the feet and leg to retain hydration, sterile gauze piece and bandage. All patients are taught the use of the materials and demonstrated as group therapy.

Results: In a study conducted in the field area within four months the complete healing has been observed to occur in about 40% of cases. In 24 % cases >75 % healing was observed. In all improvement was noticed in 85 % cases. Since the use of moisturising cream on the leg and feet improved the tugor of the skin in 85% cases, authors believe that just dressing does not help. The surrounding skin has much to contribute in the healing process.

Conclusion: Our intention is to demonstrate the fact that given the materials and if educated about the procedure of self care patient himself can be his doctor and does not have to rely on visits to leprosy clinics for repeated dressings. All patients are given a plastic tub for soaking and at the end of session an MCR footware is supplied to take off the weight from the ulcerated area. Excellent results have been achieved and it has been accepted by government and more than 43000 kits have been distributed.
trophic ulcers and burns in leprosy patients has been developed making treatment more effective and shortening of patients’ stay at the hospital. Scenar (Self-Controlled® Energy Balancer) devices are portable autonomous electric apparatus operating in the mode of biological feedback circuit with a patients. The operation of the device is based on a physical factor representing an individually modulated electric signal similar to nervous impulse in its form. Advantages of scenar therapy include non-invasiveness, a wide spectrum of indications, and absence of age limitations.

For patients with neuropathic ulcers and burns we are using Russian technology of wound local dressing “Locus”, “Vioscopran” and for patients with chronic septic ulcers, complicated osteomyelits, — surgical treatment, combined with injection of “Perironan”.

**Conclusion:** The government renders assistance to cured patients improving their conditions of life and providing with pensions. Nevertheless, a lot of problems of life-support for leprosy patients remains to be solved, and a system of social rehabilitation needs to be improved according to the epidemiological and economic changes in Russia.

**P-255**

**Presentation Time:** Wednesday 18/09/2013 at 12:40 – 13:50

**Abstract Topic Name:** Prevention of Disability

**Abstract Screen Number:** 4

**Presenter:** Dr Apolonio Nascimento

**ORTHEOPEDIC ADAPTATION FOR GREAT DISABILITY IN LEPROSY - A CASE REPORT**

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1Medical, “Fisioterapeutical, Unidade de Referencia Especializada Dr. Marcello Candia - AIFD, Marituba, Brazil

**Introduction:** Leprosy is a chronic and infecto-contagious disease, with a great incapacitating potential. Even though this is a healing disease, the risk of developing disabilities is possible in persons presenting neural damage. When sequelae are already installed, specially in legs, cause a great restriction in daily activities. In the case we present here we intend to give an example of delayed diagnosis that led to a severe disability. We think this is the main problem of delayed diagnosis in Leprosy. We intended also to smooth the patient locomotion and increase his independence.

**Methods:** Male, age 51, Brazilian, having ended MDT. During physical examination te patient had locomotion only in wheelchair. He had been submitted to a surgical procedure with a transbilateral amputation in right leg, in the left side he had a dropping foot and amputation of foostart. In superior arts he had claw hands with reabsorption. After evaluation of sequelae, it has been indicated the following adaptations for legs: transbilateral prosthesis with orthopedic boot for right leg and modeled boot with polypropylene orthosis for left foot. All products are manufactured at the URE Marcello Candia’s Othopedic Workshop in Marituba, Brazil.

**Results:** The patient succeeded to step and walk with the adaptations without worsening of sequelae. This patient should be always followed by a Physiotherapist and an Orthopedist.

**Conclusion:** Cases of persons with serious sequelae of Leprosy, the adaptations are fundamental to improve quality of life with rehabilitation. Despite this he has also the need to be rehabilitated from the social and psychological point of view.

**P-256**

**Presentation Time:** Wednesday 18/09/2013 at 13:50 – 14:00

**Abstract Topic Name:** Prevention of Disability

**Abstract Screen Number:** 4

**Presenter:** Larissa Viveiro

**POSTURAL CONTROL IN HANSEN’S DISEASE**

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**Introduction:** Hansen’s Disease (HD) is an infectious disease, which is considered a public health problem that damages the visual, cutaneous, and nervous systems. Brazil had about 34 thousands new cases in 2011, becoming the second country worldwide in cases of HD. Nervous changing occur due to action by Mycobacterium leprae on the nerves, which causes peripheral sensory loss. The maintenance of balance requires proper integration of visual, somatosensory, and vestibular systems to produce adequate motor strategy to perform the tasks. Therefore, the knowledge of postural control of HD patients becomes crucial since a sensory neuropathy may worsen this control. The objective of this study was to analyze the postural control of individuals with HD compared to healthy individuals.

**Methods:** The study comprised 48 individuals divided in two groups: Hansen’s Disease Group (HG) with 24 lepromatous individuals (63.88±11.96 years) and the Control Group (CG) with 24 healthy and age-paired adults (43±11.72 years). We excluded from HG who had amputation of upper or lower limbs (LL); neurological diseases, and/or wounds on the plantar region. The CG participants had no abnormal sensitivity in LL. The HG were selected from Unidade de Atendimento Ambulatorial de Fisioterapia do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, Brazil. Individuals from the CG were recruited among relatives of the students and workers of the hospital. All participants signed a consent form. Subjects stood barefoot on a force plate (Pro Balance Master 8.1.0, Neurocom®, Inc, Oregon, EUA). Verbal instructions were given to subjects to remain motionless. Three 20-second trials were collected under four different sensory conditions: (1) eyes-open on a stable plate (2) eyes-closed on a stable plate (3) eyes-open on a mobile plate and (4) eyes-closed on a mobile plate. Data was transferred from the force plate to a computerized program that transformed the primary data in the center of pressure displacement (COPd) through the duration of the data acquisition. Four variables were acquired from COPd in each sensory condition: mean velocity of COPd in anterior-posterior (MVx) and medio-lateral (MVy) directions and root mean square of COPd in a p (RMVy) and m (RMVx). Quotients were calculated to quantify the sensory (visual, proprioceptive and vestibular) contributions to postural control: visual quotient (VQ), the ratio between variables of condition (2) and (1); proprioceptive quotient (PQ), ratio between variables of condition (3) and (1); vestibular quotient (VestQ); ratio between variables of condition (4) and (1). Statistical analysis was performed using Student’s t-test to compare each quotient value between groups. Significant level was adopted as p<0.05.

**Results:** No differences were found between groups when comparing VQ variables (MVy =0.399, MVx =0.328, RMSy (p=0.633) and RMSx (p=0.286)) and VestQ variables (MVx =0.117, RMSy (p=0.551) and RMSx (p=0.223)). A significant difference was found in PQ MVy (p=0.028), RMSx (p=0.026) and in VestQ MVy (p=0.023). Compare to CG, HG showed a higher PQ for MVy (2.24±0.49) and RMSx (2.39±1.21) and also higher VestQ for MVy (5.24±1.55).

**Conclusion:** Subjects with Hansen’s Disease appear to demonstrate an impaired postural control due mainly to somatosensory input when compared to healthy individuals.

**P-408**

**Presentation Time:** Wednesday 18/09/2013 at 12:30 – 12:40

**Abstract Topic Name:** Leprosy Control

**Abstract Screen Number:** 5

**Presenter:** Erik Post

**FEASIBILITY AND EFFECTIVENESS OF A COMMUNITY DERMATOLOGY APPROACH TO LEPROSY CONTROL IN NIGERIA**

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**Introduction:** A preliminary study found that people with skin problems use a variety of 1st-port-of-call providers: traditional healers (TH), patent medicine vendors (PMV), and busy health facilities (HF). On the basis of this, a pilot project aimed to establish to what extent primary and secondary health providers can diagnose and manage common skin diseases with an acceptable level of accuracy, and without harmful effects. The project also looked at the effectiveness of a referral system between the two levels.

**Methods:** A flow chart was introduced to diagnose and treat the majority of common skin diseases in northern Nigeria. Of each patient one flow chart per patient was filled in and several photographs taken, which was used for verification by two dermatologists.

**Results:** Training impact evaluation results were good, whereas testing after 6 months indicated that refresher training might be useful.

**Conclusion:** In total 4147 skin patients were seen, 1292 by traditional healers (N=12) and 2855 by patent medicine vendors (N=13), TH predominated in rural areas, and PMV in the urban. Timecaptis was by far the most frequent diagnosis at 61.4%, followed by pityriasis versicolor, scabies and pyoderma, all easy-to-treat conditions. Leprosy was suspected 62 times: 4 new cases and another 4 with complications after MDT. Diagnosis was correct in 79% of all patients (both PMV and TH) and 82% was correctly treated (both PMV and TH). Potentially harmful actions occurred in only 4% of all patients (PMV 4.4% and TH 3.0%). Referral rates were 57% (PMV 65% and TH 3.0%). Referral arrival rates were 57% (PMV 65% and TH 30%, possibly due to an urban-rural bias), a referral diagnosis was correct in 79% of all patients (both PMV and TH) and 82% was correctly treated (both PMV and TH). Diagnosis was correct in 79% of all patients (both PMV and TH) and 82% was correctly treated (both PMV and TH). Potentially harmful actions occurred in only 4% of all patients (PMV 4.4% and TH 3.0%). Referral arrival rates were 57% (PMV 65% and TH 3.0%). Referral diagnosis was correct in 79% of all patients (both PMV and TH) and 82% was correctly treated (both PMV and TH).
be feasible on a larger scale, with likely positive spin-offs for leprosy case detection, HIV detection and AIDS care. For Nigeria it would mean a new strategy for mainstreaming leprosy control.

**P-412**

**Presentation Time:** Wednesday 18/09/2013 at 12:40 – 12:50

**Abstract Topic Name:** Leprosy Control

**Presentation Screen Number:** 5

**Presenter:** Roderick Poblete

**PUBLIC PRIVATE PARTNERSHIPS TO ADVANCE NEW APPROACHES IN TIMES OF LOW LEPROSY ENDEMICY: THE PHILIPPINE EXPERIENCE**

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**Introduction:** While the Philippines have successfully achieved a national prevalence rate of less than one in 10,000 population, there are still areas in the country with relatively high prevalence rates of the disease. The current challenge, therefore, is to revitalize and continue to sustain the fight against leprosy to avoid its reemergence as the health system is undergoing the process of integration and health sector reform. The experience of public-private partnerships to address health issues have shown considerable success in addressing diseases that have put a burden in development like, tuberculosis and HIV and AIDS. The Philippines Department of Health together with the Novartis Foundation for Sustainable Development has partnered to develop and implement a comprehensive leprosy strategy as part of the broader National Leprosy Control Program using innovation and collective action to generate continued interest in an old curable disease with a perplexing natural history and social dimensions.

**Methods:** A descriptive study obtained through review of proceedings, record and literature and key informant interviews using a standard questionnaire involving stakeholders from the public and private sector regarding their experience, insight and recommendations in pursuing public–private partnerships as a strategy to sustain leprosy control in the period of low endemicity and health sector reform.

**Results:** Public-private partnerships created an opportunity for stakeholders to discuss issues, share valuable experiences and new approaches with other programme implementers and experts from diverse fields to integrate leprosy interventions in health and development responses across sectors at the local and national level.

**Conclusion:** Public–Private Partnerships facilitate innovation and is significant in sustaining integrated and inclusive responses to leprosy in the time of low endemicity.

**P-413**

**Presentation Time:** Wednesday 18/09/2013 at 12:50 – 13:00

**Abstract Topic Name:** Leprosy Control

**Presentation Screen Number:** 5

**Presenter:** Rajni Singh

**“IMPACT OF DISTRICT TECHNICAL SUPPORT TEAM (DTST) IN BIHAR AFTER WITHDRAWAL”**

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**Introduction:** MDT is fully implemented in Bihar in 1996-97. Bihar was the last state to implement fully with Multi Drug Therapy (MDT) in the India compare with other State in India. LEPIRA Society has been worked in the District Technical Support Team (DTST) mode from 2001 to 2007 in nine district of Bihar. The goal was DTST was to support the NLEP program in terms of capacity building in Planning, Implementation, Monitoring / Supervision, Documentation, drug channelization and evaluation the programme. In 2007 (March) DTST support were withdrawn from District.

This study has been taken to know the impact of District Technical Support team (DTST) after its withdrawal in Bihar.

**Methods:** Community health projects were launched by LEPIRA society in the 4 district to empower the community to assess existing health services provided by Government Health System. During the implementation of Integrated Disability control Programme (IDCP) in 4 districts of Bihar (Samastipur, Begusarai, Bhabpur and Munger) the impact of DTST program were assessed in 41 PHC in 4 said district during March 2012. The team was interacted with Incharge Medical Officer of Primary Health Centre, verification of records & report. New and old cases were also examined by Team. Accelerated Social Health Activist (ASHA) /Aagan Wadi Worker (AWW) /Panchayati Raj Institution (PRI)/ Rural Medical Practitioner (RMP) were also interviewed for their knowledge, attitude and practices in their area.

**Results:** Referral of suspects from rural was very high and ratio of confirm cases were good. Since 2005 the care detection rate are similar in each year. Wrong diagnosis was observing only 1.7%, MDT stock was adequate for more than three months with long expired. Report and record were prepared and submitted timely. It was also observed the knowledge of suspect /referral was very satisfactory among Accelerated Social Health Activists (ASHA)/Aagan Wadi Worker (AWW) /Panchayati Raj Institution (PRI). The awareness regarding leprosy disease, treatment and programme was 76% in the community.

**Conclusion:** Case detection rate were high and high level of referral coming from field. Still index (MB with highly positive cases) and child cases were coming from difficult /hard to reach area and child proportion are high compare to national average. Special action will be needed in those areas in each district. Schedule Cast and Schedule tribe new case detection are more than general population. Special action plan will be needed for these populations.

The integration are very successfully in Bihar. The entire centres are working on their own without external support. Doctor are diagnosing on their own in all working days. This modal can be replicate in other national programme.
P-415
Abstract Topic Name: Leprosy Control
Presentation Screen Number: 5
Presenter: Dr Aparna Srikantam

ASSESSMENT OF KNOWLEDGE ABOUT LEPROSY IN 490 ACCREDITED SOCIAL HEALTH ACTIVIST (ASHA) WORKERS

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1Programmes, LEPRO Society, Secunderabad, India

Introduction: One of the key components of the Indian National Rural Health Mission (NHRM) is to provide every village in the country with a trained female community health activist Accredited Social Health Activist (ASHA). Selected from the village itself and accountable to it, the ASHA will be trained to work as an interface between the community and the public health system. ASHA worker will create awareness on health and mobilise the community to lead healthy life. ASHA will provide information on nutrition, basic sanitation & hygiene practices, healthy living and working conditions, information on existing health services to the community. ASHA plays very important role in motivating people on leprosy services provided in Government hospitals and PHC. ASHA is also responsible for referring the suspected leprosy cases for local PHC. This study was designed to determine the knowledge of ASHA workers about leprosy.

Methods: A study was conducted on 490 ASHA workers employed in different PHCs of Krishna and Adilabad districts with the support of Indian Council of Medical Research (ICMR). The study period is 3 years from June 2011–December 2013. In Krishna 6 PHCs with a total population of 4,25,820 were selected. In Adilabad 6 PHCs with a total population of 1,85,671 were selected. A study was conducted on 490 ASHA workers employed in different PHCs of Krishna and Adilabad districts. ASHA were interviewed about cause, treatment availability, and curability of leprosy. Their training and capacity to refer patients to PHCs were also elicited. The data was collected using well-structured instrument. Analysis was done using MS Excel, part of which is discussed in results.

Results: Out of 490 ASHA workers, 30.8% have below high school education. 74.7% had field experience of 6-10 years. 74.3% of ASHA workers had not received any training on leprosy. 18.2% knew MDT was the name of treatment. 12 out of 131 trained ASHA still think that leprosy is not curable. 22.4% think patient need to be isolated. 21.4% of ASHA feel hereditary has some role in leprosy. 22.45% think patient need to be isolated. 21.4% ASHA feel hereditary has some role in leprosy. 21.4% ASHA feel hereditary has some role in leprosy. 21.4% ASHA feel hereditary has some role in leprosy. Only to 5.7% of ASHA received Incentives for referral of suspected leprosy cases to PHC.

Conclusion: ASHA workers lack training on leprosy. The training should include discussion on causes of leprosy, mode of transmission, availability of free treatment in government hospital and local PHCs and curability of the disease. Many are not aware of case detection and hence the number of cases referred to PHCs on suspicion was less. The incentives for referral and leprosy case holding in PHC area were either not given or less. There seems to be a need to strengthen the referral mechanism by active involvement of capacitated ASHA in the post leprosy elimination and integration scenario. PHCs with poor services for leprosy are to be identified and improved to meet the referral demand.

P-416
Abstract Topic Name: Leprosy Control
Presentation Screen Number: 5
Presenter: Nimal Kasturiratna

WHICH PUBLIC HEALTH MODEL IS SUITABLE FOR LEPROSY CONTROL?

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Introduction: A scan through the public health models that exist reveals that the underlying foundations of such models could be classified into three: those based on theoretical concepts such as environment, health promotion, economics etc., those inherited through political processes such as welfare states and those that have been construed on organizational development principles. Given the low infectivity, stigma, undetected development of disability, relatively prolonged treatment and clinical management and the fact that the victims come from poor communities demands that the leprosy health managers review the public health models that they use to curb this disease. It may be that it is the gaps in such models that prevent leprosy workers making effective control measures to control Leprosy where the disease is still endemic.

Methods: A comparison across the different public health models that are in use currently and matching them with special needs of the disease condition is expected to reveal the limitations of the models and the relevance of the methods of control used.

Results: This paper will highlight the relationship between the prevention-oriented public health model that has been inherited on the basis of the welfare state and the present state of leprosy control taking Sri Lanka as an example. It also describes the relevant merits and demerits of the model and attempts to identify gaps through comprehensiveness creeps out, making the programme less effective

Conclusion: Given the limitation of the existing model, this paper proposes a model based on quality of life, health rights, integration and the possible threats for the introduction of such a system.

P-421
Presentation Time: Wednesday 18/09/2013 at 13:30 – 13:40
Abstract Topic Name: Leprosy Control
Presentation Screen Number: 5
Presenter: Shivakumar Mugudalabetta

SITUATIONAL ANALYSIS OF LEPROSY CONTROL IN BIHAR, INDIA

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Introduction: Leprosy control programme has made remarkable progress in Bihar with the involvement of different stakeholders. Bihar is one of the three states in India yet to achieve the elimination goals and reports third highest number of new cases in the country. Situational analysis is needed to devise strategies aimed at further reduction of leprosy burden in the state.

Methods: SWOT (Strength, Weakness, Opportunities and Threats) analysis of leprosy control services provided in Bihar was done to assess the current situation.

Results: The number of new cases detected is showing decline from 2011. Involvement of community volunteers like Accredited Social Health Activists (ASHA) is a major strength for enhancing early case detection and is an important link between leprosy services and community. Leprosy services are delivered through general health system. Implementation of rehabilitation services for person affected by leprosy still remains as a major challenge. The expertise and the number of Reconstructive Surgeries (RCS) done are declining since last two years. Lepra reactions are frequently missed by the local health workers due to the lack of knowledge. Most of the vertical program staff is expected to retire in the next 5 years hence could threaten the sustainability of leprosy services especially management of reactions. The potential of civil society organizations remains untapped and their involvement needs to be explored.

Conclusion: There is an urgent need for establishing leprosy referral centers to manage complications and surgical rehabilitation. Continuing Medical Education to the health professionals is needed to sustain the leprosy expertise. Engaging the community through civil society partnership is needed for sustaining the leprosy services.
Among the control, 38 patients (either 39.6%) had a distance from 0 and 2 km to reach a health facility; 48 patients (either 50%) between 3 and 5 km; 10 patients (either 10.4%) more than 5 km.

Among the control, 11 patients (11.4%) are reaching health facility in 30 min, 55 patients (57.5%) between 30 min and 1 hour, and 30 patients (31.2%) more than one hour. The means used to reach this facility is walk for 62 patients (64.6%), bicycle by 23 patients (23.9%), motorcycle by 5 patients (5.2%) and transportation in a private vehicle for 6 patients (6.2%).

Conclusion: Access to health facilities seems to be good enough in Burundi. Nevertheless, walking remains the essential mean of access for the majority, a way not always easy for patients suffering from wounds or feet amputations. The National Programme will develop, with the support of the Ministry of Health, services that must be closed to the patients and their families.

P-420
Presentation Time: Wednesday 18/09/2013 at 13:50 – 14:00
Abstract Topic Name: Leprosy Control
Presentation Screen Number: 5
Presenter: Arie de Kruijf

EVALUATION OF A PILOT PROJECT USING SMS TECHNOLOGY TO COLLECT LEPROSY DATA IN MOZAMBIQUE
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Introduction: Improved access to communication technology, particularly mobile phones, has impacted communities in unprecedented ways and the expansion of the cellular network in Africa in particular has brought many new opportunities. In Mozambique the cellular network has increased rapidly and now covers even remote districts, while cheaper imported mobile phones have flooded the market. Traditionally, in Mozambique, leprosy case notification information has been kept by each District Supervisor in a register. This information is then passed in written reports to the Ministry of Health via the Provincial Supervisor. The information is fragmented into the different districts and consist mostly of numbers and the link to the actual patient is often lost. To get some specific information on a slightly different population set (e.g. women with grade 2 disability) was often very tedious and time-consuming.

With support from The Leprosy Mission Mozambique, an SMS based leprosy case notification system was set up as a 2 year pilot project for Mozambique starting in April 2011. The project created an SMS structure for the provincial and district supervisors for the notification of new leprosy cases, end of treatment and MDT medication levels. The project aimed to “improve the management of leprosy in Mozambique by improving the accuracy, reliability and availability of leprosy control information to and from leprosy service providers”. The project was evaluated between October 2012 and January 2013 by Swiss TPH (Swiss Tropical and Public Health Institute). The outcomes of the evaluation are presented in this poster.

Methods: The evaluation aimed at assessing the overall project performance, and collecting lessons learned and recommendations regarding the design and implementation of the project. The evaluation questions therefore focused on effectiveness, impact, relevance, efficiency and sustainability.

Data collection consisted of documentation review; semi-structured qualitative interviews with key partners and stakeholders based on the evaluation matrix and also observation to analyze practical aspects connected with the implementation of SMS Hub (software, hardware).

Results: According to the key informants, the project improved the management of leprosy in Mozambique, as “accuracy, reliability and availability of leprosy control information” shared between levels of care clearly improved”. The SMS-Hub allows the users across the NCLP to see real time patient data and statistics as they never did before. Patient leprosy data is more reliable which helps decision making. The national drug supply chain involves several actors not engaged with the SMS-Hub project, so the MDT stock level data is less reliable.

The SMS Hub helps users performing their work, rather than being an extra burden. Reports are easier to create by using the SMS-Hub, supervisors can generate reports without manual data aggregation, which is much appreciated, especially by Provincial Supervisors.

Conclusion: The pilot project has demonstrated that SMS technology can be successfully used to collect leprosy data from remote districts. The impacts of the project are likely to remain as long as the system is maintained, and training and monitoring conducted. Currently, Provincial and District supervisors are satisfied using SMS-Hub and take benefit from it.

Many lessons have also been learned that can feed into the design of improved systems and possibly also link to Neglected Tropical Diseases.
therapy (MDT). ENL commonly affects young adults, often becomes chronic and may persist for up to many years. It causes severe morbidity and economic hardship. However, there are no prospective studies of the clinical features of ENL that might inform future treatment studies. ENLIST 1 is a prospective international multicentre collaborative study to determine the clinical features of ENL and the treatments employed in different countries. Methods: Individuals diagnosed at Anandaban with their first episode of ENL, a new recurrent episode of ENL or a deterioration of their ENL while on ENL specific treatment were enrolled. Using standardized definitions and a data collection form demographic, clinical and laboratory data were recorded including evidence of nerve function impairment using voluntary muscle and sensory testing. The physician determined severity of ENL and the treatment administered were recorded. Results: To date, 22 patients with ENL have been enrolled as follows. 4 individuals were newly diagnosed with ENL, 2 had recurrent and 16 chronic ENL. 82% were male. The median age was 29 years (range 18-57). 14% had BL leprosy and 86% LL. The average initial bacterial index (BI) was 4 at leprosy diagnosis. 59% were taking MDT. 91% of patients were classified as having severe ENL. All patients had painful erythematous skin nodules or lesions. 27% reported severe bone pain. 69% had fever and 41% had nerve function impairment. Lymphadenopathy was present in 14%. The C-reactive protein (CRP) was elevated in 86%. One patient was pregnant at the time of ENL diagnosis. 3 of the 4 individuals diagnosed with their first episode of ENL were placed on prednisolone while one patient with severe ulcerated nodules was placed on thalidomide only. Most ENL patients (95%) received prednisolone, although only 41% received only prednisolone. Others also received thalidomide (14%), clofazamine (23%), Azoran (5%) or some combination of these (14%). Some ENL patients receiving clofazamine had completed MDT (9%) while others had not yet completed their MDT (27%). Conclusion: The majority of patients in this hospital-based study have severe, chronic ENL. Prednisolone was the most common treatment administered, although thalidomide was used in more severe cases. Skin lesions were present in all patients and a large proportion had evidence of a systemic inflammatory response demonstrated by an elevated CRP. Standardized documentation of ENL characteristics and treatment should allow comprehensive severity comparisons between ENL patients and leprosy care service providers across endemic populations. These data are preliminary with further recruitment ongoing.

P-359

Presentation Time: Wednesday 18/09/2013 at 12:50 – 13:00
Abstract Topic Name: Detection and Treatment of Reactions
Presentation Screen Number: 6
Presenter: Anna Maria Sales

ENLIST 1: A PROSPECTIVE STUDY OF THE CLINICAL FEATURES AND TREATMENT OF ERYTHEMA NODOSUM LEPROSUM AT THE LEPROSY LABORATORY, OSWALDO CRUZ INSTITUTE, FIOCRUZ, RIO DE JANEIRO, BRAZIL

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Introduction: Erythema nodosum leprosum (ENL) affects approximately 50% of individuals with lepromatous leprosy (LL) and 10% of borderline lepromatous (BL) leprosy patients. ENL is a debilitating, multisystem disorder characterised by fever, malaise, and crops of painful erythematous cutaneous nodules. ENL also causes nerve impairment, arthritis, bone pain, orchitis, hepatitis and iritis. ENL may occur before, during or after completion of multidrug therapy (MDT). ENL commonly affects young adults and may persist for up to 10 years. It causes severe morbidity and economic hardship. However there are no prospective studies of the clinical features of ENL which might inform future treatment studies. ENLIST 1 is a prospective international multicentre collaborative study to determine the clinical features of ENL and the treatments employed in different countries.

Methods: Individuals diagnosed with their first episode of ENL, a new episode of ENL or a deterioration of their ENL while on ENL specific treatment were enrolled. Using standardized definitions and a data collection form demographic, clinical and laboratory data were recorded including evidence of nerve function impairment using voluntary muscle and sensory testing. The physician determined severity of ENL and the treatment administered were recorded.

Results: A total of 21 ENL patients were recruited up to February 2013: among them 12 (57.15%) were males and 9 (42.85%) were females. 9 (42.85%) patients BL and 12(57.15%) patients were classified as LL. At the time of diagnosis, 13 (61.90%) patients had BI <3 and 11 patients (52.38%) 13 (61.91%) patients presented with reaction:With regards to their ENL presentation, 7 (33.3%) patients presented with NEW ENL, 13 Patients (61.91%) presented with chronic ENL and 1patients with recurrent ENL. Severity of ENL reaction was graded severe for 8 patients, moderate for 15 patients and mild for 1 patient. Pain symptoms reported were analyzed: skin pain 18 (85.71%), joint pain 19 (90.91%), bone pain 17 (80.95%), muscles 12(57.15%), nerves 11 (52.38%), digits 9 (42.85%). Eye symptoms were reported in 5 patients (23.81%) and testicular pain reported in 2 patients. Nerve symptoms were analysed among ENL patients who had nerve symptoms: the commonest nerve symptom was pain in 11 patients, decreased sensation in 5 patients, weakness in 3 patients and hypothermia in 1 patient. All 21(100%) patients presented with crops of erythematous painful nodules. The other types of ENL skin lesions reported were ulcerated skin lesion seen in 7 (33.3%) patients, bullae and vesicular lesions were also seen in 2 patients. Fever was reported in 16 patients (76.19%) and peripheral edema in 15 (71.43%), malaise 13 (61.91%), nasal stuffiness 12 (57.15%), epistaxis 10 (47.6%), joint swelling 7 (33.3%), depression 7 (33.3%).

Conclusion: High BI >3 is a risk factor to develop ENL reaction. The common clinical ENL features are ENL skin lesions, high grade fever, malaise, arthralgia and peripheral edema. Other illness identified were intestinal parasitosis in five patients, anemia in 4 patients and diabetes in one patient. 12 (57.12%) were treated with prednisolone, 9 (42.85%)patients treated with a combination of prednisolone and chloroquine and 1 patient was treated with dichlofenac tablets. Correlation of Ethiopian ENL data to other international data would be interesting in helping to define types of ENL, severity and treatment regime.
**P-361**

**Presentation Time:** Wednesday 18/09/2013 at 13:10 – 13:20  
**Abstract Topic Name:** Detection and Treatment of Reactions  
**Presentation Screen Number:** 6  
**Presenter:** Vivek Pai

**“ENLIST 1: A PROSPECTIVE STUDY OF THE CLINICAL FEATURES AND TREATMENT OF ERYTHEMA NODOSUM LEPROSUM AT BOMBAY LEPROSY PROJECT, MUMBAI, INDIA”**

V. V. Pai 1,*; J. Walia 2 and the Erythema Nodosum Leprosum International Study (ENLIST) Group 2

**Introduction:** Erythema nodosum leprosum (ENL) affects approximately 50% of individuals with lepromatous leprosy (LL) and 10% of borderline lepromatous (BL) leprosy patients. ENL is a debilitating, multisystem disorder characterised by fever, malaise and crops of painful erythematous cutaneous nodules. ENL also causes nerve impairment, arthritis, bone pain, orchitis, hepatitis and iritis. ENL may occur before, during or after completion of multi-drug therapy (MDT). ENL commonly affects young adults and may persist for up to 10 years. It causes severe morbidity and economic hardship. However there are no prospective studies of the clinical features of ENL which might inform future treatment studies. ENLIST 1 is a prospective international multicentre collaborative study to determine the clinical features of ENL and the treatments employed in different countries.

**Methods:** Individuals diagnosed with their first episode of ENL, a new episode of ENL or a deterioration of their ENL while on ENL specific treatment were enrolled. Using standardized definitions and a data collection form demographic, clinical and laboratory data were recorded including evidence of nerve function impairment using voluntary muscle and sensory testing. The physician determined severity of ENL and the treatment administered were recorded. The data were studied for preliminary observations.

**Results:** The data was studied with respect to 26 patients with ENL reaction which were recruited at the Main Reference Centre of Bombay Leprosy Project of which patients 6 were new with new ENL, 19 with recurrent ENL and 6 with chronic ENL. Clinically 11 patients belonged to BL type and 14 of LL type, 21 were males and 5 females. Neuritis was seen in 3 patients, BI < 3+ in 4 patients and BI > 3+ in 21 patients. Histopathology studies done in 5 patients had features of ENL in all 5 patients. Laboratory investigations included routine haemogram which showed leucocytosis in 15 patients out of 19 done and 11 patients with raised ESR out of 15 done, C Reactive protein levels were found to be raised in 6 patients and HIV screening using ELISA studies was negative in most patients.

**Conclusion:** Observations from the ongoing study are preliminary and concrete findings need to be confirmed in a larger series of patients with ENL which are being recruited.

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**P-362**

**Presentation Time:** Wednesday 18/09/2013 at 13:20 – 13:30  
**Abstract Topic Name:** Detection and Treatment of Reactions  
**Presentation Screen Number:** 6  
**Presenter:** Saba Lambert

**HEALTH RELATED QUALITY OF LIFE (HRQOL) IN LEPROSY REACTIONS CLINICAL TRIALS, AT ALERT, IN ETHIOPIA**

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**Introduction:** In recent years there has been a broadening of focus in measurement of health, beyond traditional health indicators such as mortality and morbidity, to include measures of the impact of disease and impairment on daily activities and behaviours, perceived health measures and disability /functional status measures. With increasing comparative clinical studies being conducted in the management of leprosy reactions, health related quality of life questionnaires should be used to allow patients’ assessment of treatments to be taken into account.

**Methods:** With no validated HRQOL tool available in Amharic (main Ethiopian language), the SF36 was selected for translation from English, and content was evaluated with a patient focus group. Back translation was done before being validated in patients affected by leprosy to assess validity and reliability. The questionnaire was then used in a clinical trial comparing two treatments for leprosy reactions (Prednisolone vs. Ciclosporin).

**Results:** We found the SF36 questionnaire to be a very useful and easy to use tool. Questions were easily translated into the local language and also easily understood by the patients. The questionnaire seemed to be more cross-culturally relevant than those in other HRQOL questionnaires.

The results of the validation exercise will be presented as well as the analysis of the use of HRQOL in the clinical trial. SF36 was used to compare progress over time with treatment per se and between treatment arms in 135 patients.

**Conclusion:** The analysis will assess the validity of SF36 as a HRQOL measurement tool in leprosy related clinical trials.

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**P-363**

**Presentation Time:** Wednesday 18/09/2013 at 13:30 – 13:40  
**Abstract Topic Name:** Detection and Treatment of Reactions  
**Presentation Screen Number:** 6  
**Presenter:** Dr Deanna Hagge

**TYPE 1 REACTIONS IN LEPROSY: A HOSPITAL-BASED STUDY OF CLINICAL DEMOGRAPHICS AND TREATMENT PATTERNS**

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**Introduction:** Type 1 (T1R) or reversal reactions are a significant factor for morbidity and disability development in new and multi-drug therapy (MDT) treated leprosy patients. The underlying dynamics for T1R are poorly understood; and therefore, adequate tools for prevention, early diagnosis and treatment strategies are either absent or limited. Current World Health Organization guidelines recommend 12 weeks of tapered prednisolone. Although it is known that protracted treatment durations are often required, limited information is available regarding risk factors and actual treatment patterns across endemic populations. In order to characterize risk factors and T1R treatment patterns within an endemic population, a retrospective chart review was performed in Nepal.

**Methods:** A retrospective chart review was performed on 1033 leprosy patients at Anandaban Hospital, which serves as a leprosy referral centre for Nepal. 386 patients presented at Anandaban within one or more episodes of T1R between 1996-2011. Host DNA was also collected from most patients for genetic susceptibility analyses.

**Results:** T1R occurred across the Ridley-Jopling spectrum of clinical classification; however, 87% of T1R arose in borderline patients (borderline tuberculoid (BT, 35%), borderline borderline (BB, 5%) and borderline lepromatous (BL, 47%).) Most first episode T1R (62%) were diagnosed concurrent with leprosy diagnosis. After MDT initiation, another 23% of first T1R episodes occurred within the first year, 11% within 2-5 years and 4% after 5 years or more. Patients <40 years old and those with BB/BL leprosy were at increased risk for T1R (OR 3.4/3.91 respectively). PB/MB classification, bacterial index (BI) and ethnicity were not related to T1R risk. Prednisolone treatment for first episode T1R ranged 3 months to 9 years, with a median duration of 30 weeks. Depending on classification, roughly 25-45% of borderline patients developed a second T1R episode (separated by 1 or more months without symptoms or treatment) with another 30% of those patients developing a third episode.

**Conclusion:** In an era of post-elimination control programs and passive case detection, T1R will remain a significant factor in driving undiagnosed leprosy cases to seek clinical diagnosis. Although T1R occurs across the leprosy spectrum regardless of BI, risk is highest for those under 40 years of age or with borderline forms of leprosy. Median prednisolone treatment necessary to resolve a first T1R episode was 30 weeks. These findings highlight current inadequacies regarding prompt T1R resolution and the critical need to identify better prevention, early diagnostic and treatment strategies. Further analysis of this data and associations to genetic susceptibility are in progress.
i.e. non leprosy without neuropathy. Events are observed as before the treatment, while effective, and after multidrug therapy (MDT), when the host is released from the pathogen. These data suggest nerve damage, not only as a result of the invasion of the pathogen in the Schwann cells. Thus, we have different mechanism of nerve injury. Later cases apparently are aberrantly triggered autologous host immune response, autoimmune.

Methods: This study presents experimental evidence for the autoimmune mechanism of nerve damage in leprosy. Both cross-reacting epitope (CRE) Mycobacterium leprae and human peripheral nerve (hPNP) have been identified by immunochromatographic method of analysis.

Results: CRE is resistant to heat, incubation with acid, urine, chymotrypsin and settled in saturated solution of ammonium sulfate. Myelinated nerve fibers of mice dorsal root ganglia "in vivo" revealed demyelination and degeneration after leprosy serum (anti-CRE antibody) application.

Conclusion: These findings elucidate a novel mechanism that is involved in the immunopathogenesis of nerve damage in leprosy.

P-365

Presentation Time: Wednesday 18/09/2013 at 13:50 – 14:00
Abstract Topic Name: Detection and Treatment of Reactions
Presentation Screen Number: 6
Presenter: Sérgio Luiz Antunes

DEMYELINATION IN LEPROSY NEUROPATHY: CORRELATION BETWEEN ELECTRONEUROGRAPHICAL ALTERATIONS AND DETECTION OF SERUM ANTI-GANGLIOSIDE ANTIBODIES.

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Introduction: Demyelination was demonstrated by teased of nerve fibers to occur in human leprosy neuropathy according to Shetty et al (1987). Patients suffering reactive episodes, display demyelinating pattern in electronmicrographical (ENG) exam (Jardim et al, submitted) and remyelinated fibers are also found in leprosy nerve biopsy specimens (Antunes et al, 2012). This is 'in line with the Rambukkana’s report on the M lep-induced demyelination in experimental animal and in vitro models (2002). The mechanisms of demyelination in leprosy are still elusive and autoimmune chronic inflammation may also be one of them. Antibodies to gangliosides are known to be involved in the mechanism of demyelination in chronic demyelinatiing polyneuropathy (CDP). This study aims to to correlate the detection of IgG antibodies to gangliosides in leprosy patients ‘ sera with the presence or absence of a demyelinating pattern detected in leprosy patients by ENG.

Methods: Thirty patients were selected for this study and sorted into groups: 22 with demyelinating pattern in ENG (14 with demyelination + neuritic reactive episode = D+R =, 8 with demyelinating but no reaction =), eight patients in leprosy reactionary episode but without demyelination = R; this groups was composed of 1 neuritis, 6 type I reaction and 1 type II reaction). Patients were clinically evaluated, submitted to ENG and their sera were collected concomitantly to the ENG to determine IgM antibody levels to the gangliosides GQ1b, GM1, GM2, GD1a, GQ1b.

Three healthy individuals were included in the study as a control for serological tests.

Results: Thirteen (43.3%) (9D, 1D, 3R) in the total of 30 patients were anti-ganglioside-immunoreactive in the sera for at least one of the antibodies studied and 17 (56.7%) patients had no serum antibody detection. Among the 22 patients with demyelination in ENG (14 D+R and 8 D), 10 (45.5%), (9D+R, 1D) had at least one anti-ganglioside antibody detected in the serum, and among the 8 patients without demyelination in ENG, all of them in the R group, three (37%) were immunoreactive for at least one anti-ganglioside antibody. Thirteen patients were positive for anti-GA1 ganglioside, 5 for GM1, 4 for GM2, 3 for GQ1b and none for GD1a e GQ1b. The level of the antibodies were considered positive in just one healthy control individual.

Conclusion: Exacerbation of the immunoinflammatory response in leprosy reactions generate a release of inflammatory mediators. Metalloproteases 9 and 2 as well as TNF are reported to be upregulated in immune activated individuals with pure neural leprosy (Teles et al, 2007; Oliveira et al, 2010). This is in connection with the Shubayev et al (2008), correlating elevated MMP levels with demyelination and increased degradation of myelin basic protein in chronically injured mouse nerves (experimental model). The elevated level of serum antibodies to gangliosides in leprosy patients could contribute to the severity of the reactive response and consequent increased demyelination. Serological studies may provide a tool for diagnosis and follow-up of demyelination in patients with leprosy neuropathy.

P-355

Presentation Time: Wednesday 18/09/2013 at 12:30 – 12:40
Abstract Topic Name: Experiences of People and Community
Presentation Screen Number: 7
Presenter: Maria De Jesus Alencar

LEPROSY REACTIONS AFTER RELEASE FROM MULTIDRUG THERAPY IN AN ENDIMIC CLUSTER IN BRAZIL: PATIENT AWARENESS OF SYMPTOMS AND SELF-PERCEIVED CHANGES IN LIFE.

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Introduction: We know little about existing diagnostic problems and case management issues from the perspective of persons affected by leprosy reactions. The objectives of this study were to relate leprosy-related reactions with perceived changes in life and socio-economic conditions as seen from the point of view of the patients.

Methods: Cross-sectional study in five municipalities of a leprosy-endemic cluster in north and northeast Brazil. We performed structured interviews with 280 individuals after release from multidrug therapy, who had experienced leprosy reactions in the period 2007 to 2009. Data included socio-demographic and clinical information and open questions regarding diagnosis of leprosy disease, patient awareness, diagnostic features of leprosy reactions, and self-perceived changes in life.

Results: Fifty-eight (38.7%) patients had been diagnosed with leprosy during reactive episode. In 240 (85.8%) of cases, the patient himself/herself perceived symptoms first and in 29 (10.4%) the disease was noted by family members and friends. In 95/150 (63.3%) of cases where information was available, the Primary Health Care centre was the first entry point into the health system. In 69 (72.6%) of these cases, diagnosis was made within the primary care setting itself, whereas 23 (24.2%) patients were referred and diagnosed in reference centres. Self-perceived leprosy reaction signs and symptoms included skin lesions (119, 42.0%), neurological complaints (97, 35.4%), muscle disorders (11, 4.0%) and other clinical symptoms (51, 18.6%). In total, 216/280 (77.1%) stated that they perceived changes in life after experiencing leprosy reactions. Physical deficiencies limiting work performance and consequently reduced family income were mentioned by 118 (45.6%). Daily life was affected in many cases, difficulties doing household chores (25, 11.6%), Discrimination and social isolation also played an important role (49, 18.1%).

Conclusion: Self-reported changes in life indicate that leprosy still is heavily affecting individuals with reactions, and there is a need for integrative and systematic socio-psychological assistance. There is a need to maintain social participation and evidence indicates the need for empowerment of people affected by leprosy to deal effectively with the signs and symptoms of reaction and prevention of disability related events after release of MDT treatment.

P-356

Presentation Time: Wednesday 18/09/2013 at 12:40 – 12:50
Abstract Topic Name: Experiences of People and Community
Presentation Screen Number: 7
Presenter: Dr Kiran Koduri

COSMETIC CAMOUFLAGE - A SIX MINUTE MAGIC FOR LEPROSY FACIAL PATCHES.

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Introduction: Leprosy is a chronic infectious curable disease associated with a huge degree of stigma. Leprosy facial patches especially in dark skinned individuals can be a problem. Leprosy is curable in 6-12 months of MDT regimen, however facial patches may remain even after cure. Cosmetic camouflage can conceal the patches immediately. It will help in improving social and emotional functioning. Improve productivity at work and school. Reduce the burden of stigma. Leprosy patients with visible facial patches have increased the possibility of depression, anxiety, low self-esteem and increased burden of social stigma. It is prudent to consider cosmetic camouflage to them. It can offer rapid (six minute) and dramatic results. Cosmetic camouflage is a technique using make up to disguise disfiguring skin lesions immediately with intention of normalising the appearance of the skin. It is an art of concealing (facial patches). It can last up to 12 hours. Literature provides abundance of evidence suggesting medical therapy in conditions such as acne, melasma, vitiligo, and rosacea. Dermatology Life Quality Index improves with therapy. It can be assumed that camouflage has a similar effect on DLQI. Further it helps build patient physician relationship, increase compliance with concurrent medical therapy.
Methods: It is offered as an option upon initial consultation as it provides immediate results. This offers, money and commitment to use the product could be a limiting factor. The readymade commercially available as Derma colour is used. It is color matched and given to the patient.

Four patients were available for the treatment. The patient has to first cleanse the skin, apply selected colour to make the patches look closest to the patient skin wait for a few moments and put fixing powder supplied along with cream. DLQI questionnaire administered before using camouflage and one month later. Clinical pictures taken before camouflage and six months later with camouflage with an amazing result.

Results: Results were amazing as seen from pre and post camouflage within six minutes. The effect was cosmetically and socially comforting. DLQI of all four patients showed significant improvement.

Conclusion: DLQI Dermatology Life Quality Index improved with usage of camouflage cosmetic. It has enhanced greatly the look of the patient, relived the burden of stigma, improved self-esteem. Improved social and emotional functioning. Improved productivity at work and school. There is a need to increase the awareness and knowledge of cosmetic camouflage.

P-461
Presentation Time: Wednesday 18/09/2013 at 13:00 – 13:10
Abstract Topic Name: CBR
Presentation Screen Number: 7
Presenter: Gabriel Pani

INTEGRATED AND SUSTAINABLE DEVELOPMENT OF THE COMMUNITY WITH VULNERABLE AND MARGINALISED DUE TO LEPROSY/DISABILITY/CASTE/GENDER TO ACHIEVE SUSTAINABLE LIVELIHOODS, IN THE ORGANISED AND UNORGANISED SECTORS, LEADING TO POVERTY REDUCTION

V. V. Patta 1,* on behalf of The Leprosy Mission Trust India, S. Francis 1, T. Mends 1, J. C. Das 1 and The Leprosy Mission Trust India

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Integrated, Gender sensitive and addresses individual's needs.
Results: Women and men of the vulnerable groups were able to come together and start savings and that has helped several of the members to meet financial emergences of their respective families. All SHGs are mixed groups (membership comprising of individuals affected with leprosy, general disabilities and those marginalised due to poverty and gender) which also supports in taking up a cause at the community level and also will be able to mainstream issues that affects people adversely affected by leprosy and disabilities. Several SHGs have come together and formed cooperatives for which the State Government renders support in providing raw materials and taking back finished products. The production cycle supports the members in regular income. The SHGs are working so much in isolation that no efforts are yet made to link up with other existing SHGs within the village/Block of district. Interventions were directed towards accessing bank loans, financial assistance for cooperatives and accessing mobility aids, pension, and referrals to vocational training. However, this was not by generating public action and visibility which would have been possible if an advocacy strategy was planned.

Conclusion: The formation of SHGs has impacted individual lives in terms of enhanced income and easy access to loans for emergency, but in terms of social acceptability, dignity and visibility more strategic planning is required. SHGs being envisaged as a financially viable group could have been stimulated to think in terms “paying for services rendered” where the volunteers could have been sustained in their villages (support to their livelihoods). The existing SHS project in Chhattisgarh should now identify the existing SHG Federations at Block/District levels and inspire the TLMTI supported groups to gain membership into the existing Block/District level SHG Federation. Most SHGs today struggle to leverage government schemes, government recognition, and support to gain competitive advantage. It is therefore imperative to have a unified platform at all levels – village, block and district to leverage new and existing policies that support the vulnerable for proactive interventions.

P-465
Presentation Time: Wednesday 18/09/2013 at 13:30 – 13:40
Abstract Topic Name: CBR
Presentation Screen Number: 7
Presenter:

Socioeconomic Issues Affecting Leprosy Affected People in Kokossa Woreda, West Arsi Zone, Oromia National Regional State, Ethiopia

W. Abera 1

1The Leprosy Mission International - Ethiopia, Addis Ababa, Ethiopia

Introduction: The presentation highlights issues and ideas generated from a study conducted to assess the rehabilitation needs of persons affected by leprosy in Kokossa district in West Arsi zone, Oromia region in Ethiopia.

Methods: The study was conducted during March and April 2012. People affected by leprosy were asked socio-economic service provision and their access to it has changed over the years. Various participatory assessment tools were used, including focus group discussions and key informant interviews. In the case of Kuyera-Shashemene, a one day validation workshop was carried out to reach a consensus on main issues raised during the assessment and suggestions given about measures to be taken to improve the situation of people affected by leprosy in the area.

Results: The main issues emerging from the assessment sites include:

- Psycho-social issues: Leprosy stigma prevails; lack of awareness about leprosy; lack of counselling services for people affected by leprosy and other disabled people.
- Amenities and social services: access to potable water; poor sanitation and hygiene; access to education for children of the leprosy affected households; access to adequate health care services to people affected by leprosy; inadequate housing.
- Livelihoods: paucity of income generation opportunities in the community, higher prevalence of malnutrition among persons affected by leprosy.
- Coordination and collaboration: No NGO with permanent local presence; lack of networking and coordination avoidance among service providers; inadequate monitoring and evaluation to measure impact of services; data gaps to measure performance of development interventions.

The study also highlighted several opportunities for improving the situation, including:

- Nearby government schools
- Referral hospital at Sheshemane
- GLRA shoe programme
- Sheshemane branch of ENAPAL providing saving and credit services and community awareness workshops

Conclusion: The activities of the Ministry of Health, ILEP members and other leprosy service providers in Ethiopia have been limited to easy to reach areas. This study has highlighted the great needs in the hard to reach Kokossa area as well as opportunities which exist to help reach out to people affected by leprosy.

Since this study, leprosy actors in Ethiopia have created the Leprosy Expert Advisory Group which is in the process of mapping leprosy hotspots and planning for a coordinated effort to tackle leprosy and its complications (physical as well as social) in Ethiopia.
disability, enhancing socio-emotional development and promoting value based living are given same prominence as technical training. Formation and functioning of an Alumni Association as a support group for the graduates is an important function. This study examines the extent to which the purpose of establishing VTCs for individuals from leprosy backgrounds has been achieved.

Methods: This is a Field based - Action Oriented and Participatory Research covering all 6 VTCs. In each VTC 20 students from the batches of 2004 to 2008 were selected through random purposive sampling across categories such as gender, education, trades, geographical backgrounds, etc. 20 students each from 2 Non TLM Vocational Training Centres for individuals with disabilities in the same district where TLM’s Vocational Training Centres are operationally were also selected. Research Tools used included one on one interviews, Focused Group discussions, Participatory Rural Appraisal (PRA) exercises and Appreciative Enquiry.

Results: The VTCs have been instrumental in initiating innovative approaches for greater effectiveness of processes involved: downstream (identification, counselling of parents and student, admission), in stream (training, imparting life skills, life in the hostel, interfaces with new trend in training market), upstream (interfaces with job markets, job placement, post placement services). The Alumni Association lacks shared understanding of the various agency functions that can be taken up by them and systems to make these happen - placement, preventing job drop outs, in-service training and skill up gradation, addressing stigma, advocacy work, in addressing special needs of girls.).

Conclusion: The approach of VTCs exclusively for individuals affected by leprosy is distinctive to TLMTI and is instrumental in reaching out creatively to the young adolescents making them better equipped to earn sustained and decent incomes adequate. This raises their own and of their families’ quality of life, responsibly manages the incomes earned, and live authentic value based lives. They have the potential to play a pivotal role in enabling graduates to extend caring and solidarity to each other, facilitate better placements, and enable them the job skill/knowledge up gradation through the Alumni Association. The VTCs can also contribute in creative ways to the eradication of leprosy and to addressing stigma, thus promoting mainstreaming of its graduates.

P-347
Presentation Time: Wednesday 18/09/2013 at 12:30 – 12:40
Abstract Topic Name: Social Aspects and Self-Care
Presentation Screen Number: 8
Presenter: Sunil Deepak

SELF CARE GROUPS FOR PREVENTION OF DISABILITIES IN MOZAMBIQUE

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Introduction: In 2011, national leprosy programme in Mozambiqued introduced promotion of self-care groups of persons affected with leprosy as part of prevention of disabilities efforts. A research was carried out to understand the functioning of self-care groups from the point of view of persons affected with leprosy in the provinces of Nampula and Manica. The objective of the research was to understand how self-care groups are formed and supported and kind of benefits are perceived by persons affected with leprosy, to support them and to strengthen them.

Methods: There are 64 self care groups in Nampula province and 47 self care groups in Manica province. Together these groups involve around 1500 persons affected with leprosy. Most groups are initiated and supported by leprosy programme at provincial level, but some groups are initiated and supported by other non-governmental organisations. A total of 25 groups in the two provinces were selected and interviewed with the help of a questionnaire. The questionnaire was prepared in Portuguese and then translated into local languages for administration. A reverse translation of all the collected information into Portuguese was carried out. The information collected was analysed.

Results: The research provides information about positive impact of SGG on prevention of disabilities. At the same time, it highlights different areas of benefit from SGGs and the challenges facing the SCGs. It also highlights the need of providing standardized training and support to SSG members for the functioning of the groups.

Conclusion: Self Care Groups as promoted in Mozambique national leprosy programme have the potential to strengthen prevention of disabilities as well as become a medium for promoting wider changes in lives in persons with disabilities. However, for this to be effective, more structured support may be needed.

P-348
Presentation Time: Wednesday 18/09/2013 at 12:40 – 12:50
Abstract Topic Name: Social Aspects and Self-Care
Presentation Screen Number: 8
Presenter: Minmoy Karmakar

FACTORS CONTRIBUTING TO DEVELOPMENT AND RECURRENCE OF PLANTAR ULCERS IN LEPROSY

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Introduction: Plantar ulcers are a common problem in leprosy patients with the anesthetic feet. They contribute to the stigma associated with the disease and lead to absorption of the digits and further deformity of the foot. Appropriate footwear together with regular soaping, scraping and oiling (SSO) are methods that are used to keep the anesthetic foot in good condition and to prevent ulcers. But these methods are often not followed precisely and plantar ulcers do recur. Furthermore, there are anesthetic feet, that surprisingly do not develop plantar ulcers or on healing of an ulcer do not develop a recurrence. This study aims to determine the factors related to footwear and SSO that might predispose the foot to developing recurrent plantar ulcers, thereby helping clinicians in future to recognize these risks and take suitable steps to prevent the recurrence of plantar ulcers.

Methods: This is a cross sectional study. It includes all patients affected by leprosy, attending Premanda Memorial Leprosy Hospital, with a history of 2 or more non healing plantar ulcers. After a Voluntary Motor Test, Sensory Test and Biomechanical foot exam, a standardized in-depth interview is conducted, concentrating on footwear and SSO issues. The same is done for an age and sex matched control group who are affected by Leprosy, have anesthetic soles for a duration of at least 2 years, but no plantar ulcers in the last 2 years. The sample size is 80 for each group.

Results: This is an on-going study and afteranalysis of the completed data the result will help to pin point the aspects of footwear and the SSO process that constitute a risk towards the recurrence of ulcers. Knowledge of this would help clinicians focus on these areas and take remedial steps.

Conclusion: The conclusion of this study should point out the importance and risk areas of various aspects of footwear and the SSO process that should be stressed upon in order to prevent recurrent plantar ulcers in anesthetic feet.

P-270
Presentation Time: Wednesday 18/09/2013 at 12:50 – 13:00
Abstract Topic Name: Social Sciences
Presentation Screen Number: 8
Presenter: Michel Sawadogo

POVERTY AND SOCIO-ECONOMICAL LEVEL OF LEPROSY PATIENTS IN BURUNDI

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Introduction: A survey has been conducted in Burundi in order to evaluate the outcome of a rehabilitation surgery held from January 2008 to December 2010 between patients who benefited from it. The study had to appreciate the profits of chirurgical intervention for the patient, to analyze the patient’s perception about rehabilitation and to collect some suggestions from investigated patients.

Methods: A transversal study was conducted with a case-control survey in order to appreciate the difference between the patients who benefited from chirurgical rehabilitation (case) and the other non operated leprosy patients (control). The survey essentially took place in the 5 endemic provinces of Burundi, in the Reference Hospitals and Health Centers chosen according to the source of the patients. The socio-economic level of patients included in the study was checked from a questionnaire.

Results: Housing conditions of leprosy patients: 32 patients (66.7%) living in houses with thatch roofing, 14 patients (29.2%) with sheet metal roofing and 2 patients (4.2%) in houses with tile roofing. 62.5% (30 houses) had ground made walls, 31.25% (15 houses) in bamboo and 1 (2.1%) in earthenware brick. Concerning access to drinking water, 2 patients had some in the household (4.2%), 28 patients (58.3%) had drinking water in 1 km radius while 18 patients (37.5%), in a radius more than 1km. 47 (97, 9%) patients had a home toilet and 1 patient (2, 1%) didn’t have some. About access to food, 24 patients (50%) could have 1 meal per day, 20 (41.7%) 2 meals per day while 4 patients (8.3%) had access to more than 2 meals per day. Instruction level were also been taken in account: 31 patients (64, 6%) had not been at school, 15 patients (31.2%) had not finished primary school while 2 patients (4.2%) had secondary school level.
Housing conditions among control patients: 70 patients (72.9%), living in houses with thatch roofing, 23 patients (24.9%) with sheet metal roofing and 3 patients (3.1%) in houses with tile roofing, 66.7% (64 houses) had ground made walls, 27.1% (26 houses) in bamboo and 6 (6.2%) in earthenware brick.

Concerning access to drinking water, 50 patients (52.1%) had drinking water in 1 km radius while 46 patients (47.9%), in a radius more than 1km. All had patients (100%) had a home toilet.

About access to food, 50 patients (52.1%) could have 1 meal per day, 36 (37.5%) 2 meals per day while 10 patients (10.4%) had access to more than 2 meals per day. Instruction level were also been taken in account: 40 patients (41.7%) had not been at school; 55 patients (57.3%) had not finished primary school while 1 patients (1.0%) had secondary school level.

Conclusion: The majority of Leprosy patients seems to be the poorest in Burundi: bad living conditions, poor access to drinking water and food. Burundi National Leprosy programme must develop socio-economic rehabilitation projects in order to better help patients to face poverty.

P-271
Presentation Time: Wednesday 18/09/2013 at 13:00 – 13:10
Abstract Topic Name: Social Sciences
Presentation Screen Number: 6
Presenter: Hiroshi Numayama

DEVELOPMENT OF SOCIAL INVOLVEMENT IN HANSEN’S DISEASE SANATORIUMS RESIDENTS IN JAPAN FROM THE PERSPECTIVE OF ECOLOGICAL SYSTEMS: EXAMINING THE RELATIONSHIP BETWEEN SOCIAL CHANGES AND PSYCHOSOCIAL DEVELOPMENT

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Introduction: This study seeks to investigate the relationship between social changes and psychosocial development. We analyzed 3 autobiographies of the Hansen’s Disease (HD) sanatorium residents in Japan, and examined the interactions between residents themselves and social settings under the framework of Bronfenbrenner’s ecological systems. In Japan, the national policy which segregated compulsorily the people diagnosed as HD to remote sanatorium begun in 1907. And it continued even after the cure method had been established after World War II, and was finally abolished in 1996. Most of current residents were obliged to live a life in which freedom, such as movement, career choices, and marriage etc. was restricted over fifty years.

Methods: In this study, we selected three autobiographies written by the residents themselves. The authors were Y. Hirasawa, M. Kunimoto, and S. Fujita. The sections referring to “themselves,” “family,” “sanatorium” and “society” were extracted from the autobiographies. These items were arranged in chronological order for each author, then matched with the principal contemporaneous events in Japanese society or in neighborhoods around the sanatoriums (macro- or exo-system level), major events inside the sanatoriums (meso-system level), and changes in human relations experienced by the authors (micro-system level). Thus, we composed three chronologies of every author’s life and examined the relations between the subjects and the social contexts in which they unfolded. All three authors were born in 1926-27, and entered the sanatorium during World War II when they were in their teens. According to analysis from the chronologies mentioned above, we made the life histories for our three authors.

Results: In terms of residents’ involvement with outside society, it seems that they underwent five phases of development, with each phase being triggered by some corresponding social change at the macro- or exo-system level, that is, Japan’s historical process of political, economical and social structures after World War II showed corresponding relationships with changes in the circumstances inside the nation’s sanatoriums (meso- and micro-system) and, ultimately, with the development of the residents’ social behavior. As for our three authors, their social behavior was at first limited to within sanatoriums. However, changes such as the above led to the expansion of their behavioral freedom, and they became associated with the citizens outside, and ultimately acted in concert with them. In response to these changes, their social recognition and self-awareness increased.

Conclusion: The process mentioned above suggests that the macro-system-level changes occurring from Japan’s democratization and reintegration into the international community after the war through the era of high economic growth and widespread concern about social welfare and civil rights (exo-system) markedly affected the environments inside sanatoriums (meso-and micro-system) and impacted the social behavior of each resident either directly or indirectly. We believe that this study has succeeded in describing these processes as well as indicating that Bronfenbrenner’s ecological frames are useful in describing human psychological development in relation to social contexts.
with leprosy, may make referrals to psychiatric medications, warn the team about the risks that medications can offer and still come to accompany him during treatment or leprosy reactional states and providing adequate psychotherapy.

**P-276**

**Presentation Time:** Wednesday 18/09/2013 at 13:40 – 13:50  
**Abstract Topic Name:** Social Sciences  
**Presentation Screen Number:** 8  
**Presenter:** Nicole Holmes

**THE IMPORTANCE OF COUNSELING AND SUPPORT IN OVERCOMING THE PHYSICAL, MENTAL, EMOTIONAL AND SOCIAL CHALLENGES OF LEPROSY**

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1IDEA, Rex, United States  
2Retired Family Physician, Hampshire, United Kingdom

**Introduction:** The stigma associated with leprosy can be a great burden that many individuals bear alone. Sometimes this becomes too much for people, including Rinku, a young woman in Nepal who committed suicide a few years ago. It was then that IDEA vowed to promote support, counseling, and awareness of the disease beginning again -- with honor. This is in essence how we restore dignity, and make sure that every person with Hansen’s disease feels like they are being heard.

**Methods:** For the last 11 years, as the Coordinator for IDEA’s U.S. Support Group, I’ve been the support on the other end of the phone or computer, giving individuals with Hansen’s disease a different perspective. They are happy to be able to get in contact with me, because I’ve experienced this illness, I’ve lived it, and I’ve survived the physical, mental, emotional, and social challenges that this disease brings with it.

**Results:** It took me a very long time to understand that my disease was only one aspect of who I am. The minute I told anyone that I had Hansen’s disease was when I stopped being Nicole, and started being the young woman with leprosy. Every time this happened I was forced to explain what my disease was, and become my own advocate to eliminate stigma. Of course this is an easier task now, 16 years after being diagnosed, but as an 18-year-old with no knowledge about Hansen’s disease, it was too much to handle.

With the changes in my body that I experienced, coupled by the side effects of multi-drug therapy, I was very depressed and felt alone. There were days I didn’t want to get out of bed, partially because it was too painful to do so, and I just didn’t have the desire to. What finally changed things for me was my perspective, making a conscientious decision to stop feeling sorry for myself, and the fact that I was fortunate to have a strong support system consisting of my family, IDEA, medical staff who treated me as a person, and my therapist.

**Conclusion:** The best way to find out what a person with Hansen’s disease needs is to ask them. It’s a simple thing to do, but oftentimes is overlooked. What I hear from people on the phone and through e-mails, is that they want more than anything, to continue to live their lives the way they did, prior to being diagnosed with Hansen’s disease, like I wanted. They want to be the same person to their husband, mother, sister, children, employer, and pastor. They want to be included and continue to play an active role in their families and communities, whether it is in Miami, Florida, or in a village in Ghana, so that they don’t cease to be Zilda, Kofi, Jose, Ymelda, Nicole, or Rinku.

**Conclusion:** Any community with its resources can be used to support Primary care and improve holistic in those with disabilities. This project can be replicated in rural and urban environments. The voluntary sector is important in health and social care. The voluntary sector could be ‘commissioned’ by the health services to improve the ‘holistic’, approach to health and wellbeing. The body, mind, spirit, or the whole person approach is important in people who have disabilities and who are often stigmatised by society and communities.

**P-386**

**Presentation Time:** Wednesday 18/09/2013 at 13:50 – 14:00  
**Abstract Topic Name:** Social Aspects and Quality of Life  
**Presentation Screen Number:** 8  
**Presenter:** Derek Browne

**HOLISTIC CHALLENGES FROM PRIMARY CARE**

D. S. Browne 1,2  
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2IDEA, Rex, United States

**Introduction:** Using the Resources in a Community, such as schools, community halls and local organisations, a person can be encouraged and supported despite having disabilities to engage with others and realise their holistic potential for a better Quality of Living.

**Methods:** Our rural community in the New Forest England with a population of 3500 had a Primary Care facility, a School, two churches and over 50 local organisations. These were used to improve the health and well being of patients seen in the Primary Care Surgery and who were referred to a selected community activity through the expertise of a community coordinator. The coordinator identified and compiled a data base of all the ‘Community Resources’ in the community. She listed them under themed titles including education, sport, music, art, library, clubs and societies. Also there were listed activities in the local school and college, activities in the village hall, in religious meeting places and in the private hotels. Questionnaires were performed at the onset of the programmes then at three monthly with a final questionnaire at the end of 1 year. The health status questionnaire measured quality of life in eight dimensions : physical function, social function, physical role limitations, emotional role limitations, mental health, energy/vitality, bodily pain and general perceptions of health.

**Results:** The ‘Quality of Living’ index showed a positive result. This indicated that the use of ‘Community Resources’ to improve the health, and social wellbeing for those with disabilities was positive. In the opinion of the referrers 90% of users had either achieved or were on their way to achieving their original goal. Referrers reported that 67% of respondents had improved their health and well being. None of the responders reported as feeling worse than when they started on the programme.

**Conclusion:** Any community with its resources can be used to support Primary care and improve holism in those with disabilities. This project can be replicated in rural and urban environments. The voluntary sector is important in health and social care. The voluntary sector could be ‘commissioned’ by the health services to improve the ‘holistic’, approach to health and wellbeing. The body, mind, spirit, or the whole person approach is important in people who have disabilities and who are often stigmatised by society and communities.

**P-076**

**Presentation Time:** Wednesday 18/09/2013 at 12:30 – 12:40  
**Abstract Topic Name:** Training in Leprosy  
**Presentation Screen Number:** 9  
**Presenter:** Jaison Barreto

**SITUATION OF LEPROSY IN BRAZIL, PERSONAL EXPERIENCES RELATED TO LEPROSY SYMPTOMS AND THERAPY**

J. A. Barreto 1,2  
1Medical, German Leprosy Relief Association in Brazil, Bauru, Brazil  
2Internal Medicine, Instituto Evandro Chagas, Detección y Control de la Leprosia, Brazil

**Introduction:** Leprosy remains an important problem in Brazil. Despite the advances in therapy, as MDT/WHO, the mean number of new cases detected, from 1990 to 2005, did not decrease in the states of Mato Grosso and Mato Grosso do Sul, supported by DAHW. Nevertheless, since 2006, after the beginning of financial crisis in Europe, and with the abandonment of the elimination goal by the government of Brazil, the number of new cases detected decreased from 50,000 to 30,000 per year. Consequently, there was an increasing in detection of grade 2 incapacities (visible incapacities) at the moment of diagnosis.

**Methods:** The methodology is composed by 3 steps: first, an evaluation using a structured questionnaire, to verify previous knowledge about leprosy, in order to help us choose the topics that should be emphasized during the discussions. Second, an overall lecture about leprosy, for all professionals, focused on all important aspects (epidemiology, microbiology, clinical and laboratory diagnosis, treatment and prevention of incapacities), in order to demonstrate the importance of treating the disease according to clinical form, and not on the “number of lesions”. Third, all the professionals who attend patients take part in the practical training, with newly diagnosed patients. At this occasion, I teach how to test the sensitivity to heat, cold and pain, as well as the palpation of nerve trunks. Also, very important, in the same moment we evaluate their household contacts. Fourth, I teach how to collect skin smears from lesions and index points, and/or how to take a punch biopsy (rare situation), and how to stain the smears using the Ziehl-Neelsen staining correctly.

**Results:** Using this methodology, since 2009, I already trained 4500 professionals. During these trainings, more than 500 new cases were detected, mainly because, before that, household contacts were rarely evaluated. Therefore, health professionals had the opportunity to see the importance of evaluating household contacts. This raised the number of new cases detected in all the cities I have worked, which reaches up to 400%. Only in the state of Mato Grosso do Sul, where we decentralized 90% of attention to leprosy patients, the detection increased 30%.

**Conclusion:** Physicians do not learn enough about leprosy in universities. Nowadays, the disease is commonly not included in differential diagnosis in the country. The second problem is due to the fact that most affected patients belong to poor socially and culturally background, even in rich and developed states of Brazil, like Sao Paulo and Santa Catarina. This is one of several reasons they often do not look for medical attention when the disease is in its initial phase (indeterminate leprosy). This fact, even isolated, keeps the transmission chain.

How is it possible to change this vicious circle caused by lack of training of professionals to diagnose leprosy, lack of access or negligence of patient who does not look for specialized attention, and absence of laboratorial tools for the diagnosis? A possibility is: changing the rational of all health workers about the disease, using “on service training” strategy to solve such problems.
A LEPROSY TRAINING PROGRAM IN MOZAMBIQUE

C. Phaff 1,*, A. Ndeve 2

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Introduction: In 2006 the Ministry of Health of Mozambique, National Leprosy Control Department, decided to implement, together with partner organisations, a long term leprosy training program to improve, update, standardise and evaluate leprosy training activities for national leprosy control staff and teachers in health training institutes. The main objective was to preserve knowledge and experience of leprosy control in order to maintain and improve effective early diagnosis of leprosy and reactions.

Methods: The following tools were used to achieve the objectives:
• A new up to date, comprehensive, accessible and understandable National Leprosy Control Manual for nurses and doctors
• A new Leprosy Training Guide with exercises, tests, questions and assignments linked to the National Leprosy Control Manual
• Train national medical staff, using the new Leprosy Control Manual and Training Guide
• Train teachers of major national, provincial and district health training institutes in leprosy.
• A leprosy pre- and post-test for health workers and teachers covering all relevant leprosy subjects.

Results: Two editions (2008, 2011) of a national leprosy control manual and a leprosy training guide were produced and distributed to health staff and teachers in the country. Almost 500 Leprosy pre-tests were taken for teachers and health staff. The results were analysed according to education level of participants, training domains and distribution of staff in regions with different levels of leprosy incidence.

Provincial and District Leprosy control staff has superior Leprosy knowledge compared to national, provincial and district training institutes. Provincial and District Leprosy staff in endemic regions has more leprosy knowledge than comparable staff in other regions. Mozambican general health staff has limited knowledge about leprosy.

After the pre-test, health staff in all provinces received additional training in leprosy and 233 teachers in 11 health training institutes received 1-2 day training course in leprosy. After the implementation of these activities, a leprosy post-test was conducted for 483 health staff.

Conclusion: A leprosy training program with a variety of activities was implemented in Mozambique in the period 2007-2011, possibly with increased leprosy knowledge of health staff as causal effect.

THE EDUCATION OF LEPROSY AND OTHER DERMATOSIS IN PRIMARY CARE

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Introduction: The Federal University of Rio de Janeiro is a reference unit for training health professionals in education strategies, diagnosis and treatment of leprosy. In 2009, this university starts a program of tutors for undergraduate students aiming them inclusion in family health care. This program include practical teach of dermatology and leprosy during public campaigns. The purpose of this study was to describe the actions of the program for undergraduate students.

Methods: Individuals from Complexo do Alemão community were assessed between December 2010 and January 2011. Health agents were responsible to mobilize the community for these actions. A dermatologist tutor organized the assessment with undergraduate students and professionals of family health.

Results: 41 public campaigns of dermatosis and leprosy were conducted in schools, central area and primary units care. It was found 16 (2.28%) cases of leprosy, 31 (4.42%) cases of eczema, 84 (11.98%) of dermatophytosis, 19 (2.71%) of psoriasis, 46 (6.56%) of scabies, 24 (3.42%) of impetigo, 16 (2.28%) basal-cell carcinoma and 2 (0.29%) of melanoma. Primary care was responsible for more than 90% of diagnosis.

Conclusion: This experience helps health agents, family health professionals and undergraduate students to identify the most important dermatosis in clinical practice and to assess leprosy cases directly in communities. The learning in primary care is a relevant part of training and understanding of epidemiology, interdisciplinary care, health-disease process and clinical characteristics of a chronic and stigmatizing disease such as leprosy.
INTRODUCTION: Leprosy is a chronic infectious disease caused by obligate intracellular bacillus Mycobacterium leprae which impairs the skin and the peripheral nervous systems leading to deformities. Disease follows an immunological spectrum with a tuberculoid pole at the early stage of infection which gradients through three intermediary borderline forms towards the lepromatous pole. Patients in the borderline forms experience immune exacerbations called type 1 reactions in leprosy which causes nerve damage and nerve function impairment.

METHODS: After taking informed consent, 3 ml of peripheral venous blood was collected from 44 leprosy cases in Type 1 reactions and 44 leprosy cases without any reactions attending the outpatient department of The Leprosy Mission Community Hospital, New Delhi. Serum levels of Alpha-1-Acid Glycoprotein were measured using ELISA Kits from R&D Systems Inc. USA (Sandwich ELISA Scheme).

RESULTS: We observed that the mean serum levels of Alpha-1-Acid Glycoprotein were 3715.20 µg/ml in cases with Type 1 Reactions and 2756.73 µg/ml in cases without reaction (3715.20 µg/ml Vs 2756.73 µg/ml, p<0.05) indicating that this molecule significantly increased in type 1 reactions of leprosy.

CONCLUSION: Alpha-1-Acid Glycoprotein also known as Orossomucoid was reported earlier to have an association with ENL (Erythema Nodosum Leprosum) reactions in Leprosy. We demonstrated that this molecule upsurge in Type 1 Reactions as well. Further functional studies may aid in delineating its role as a potential predictive marker for early detection of type 1 reactions and nerve damage in leprosy.

Presentation Time: Wednesday 18/09/2013 at 13:30 – 13:40
Abstract Topic Name: Immunology
Presentation Screen Number: 9
Presenter: Dr. U. Sengupta
Further work on leprosy patients will validate these results.

**Introduction:** Toll-like receptor (TLR)-4 belongs to a family of pattern-recognition receptors that bind to microbial ligands. Lipopolysaccharide (LPS) of Gram (-) bacteria is their most common ligand, the activation of which leads to the production of several pro-inflammatory cytokines. LPS does not form part of the cell wall of Mycobacteria. However, a role of TLR4 in the pathogenesis of mycobacterial infections has been suggested. Although TLR1 and TLR2 have been both implicated in the host recognition of M.leprae, the role of TLR4 remains unknown. We investigated the TLR4 expression of primary macrophages after incubation with increasing concentrations of killed M.leprae.

**Methods:** Peripheral blood mononuclear cells (PBMCs) were isolated with gradient centrifugation from peripheral blood of BCG and non-BCG vaccinated healthy volunteers within the London School of Hygiene and Tropical Medicine. Macrophages were allowed to differentiate over 8 days after using Macrophage colony stimulating factor (M-CSF). Attached cells were isolated and incubated overnight with increasing doses of killed M.leprae. Staining for macrophage markers CD14, CD16 and CD68 and for TLR4 was performed by multi-coloured flow cytometry. CD68 expression was considered a marker for matured macrophages and these cells were analysed for the expression of TLR4. The Median Fluorescence Intensity (MFI) for TLR4 expression was calculated. BCG-vaccinated subjects were compared with non-BCG.

**Results:** In macrophages from BCG-vaccinated healthy volunteers the dose-response curve of % change of TLR4 MFI with increasing concentrations of killed M.leprae showed gradual down-regulation of the receptor. On the other hand, the % change of TLR4 MFI in non-BCG vaccinated healthy volunteers showed up-regulation at low Multiplicity of Infection (MOI) of killed M.leprae (MOI<25) whereas at very high MOI (>50) showed a down-regulation of the receptor. TLR4 expression in macrophages is altered after incubation with killed M.leprae. This is a model for analysing TLR4 response in vitro. Further work on leprosy patients will validate these results.

**Conclusion:** Spreading the leprosy knowledge to school children and members of the community has proved to be a vital methodology in controlling leprosy and hence it has to be scaled up. As more and more people become knowledgeable in leprosy we can see an increase in self reporting of those suspected with leprosy. It is of no doubt that when school children and other members of the community are empowered in suspecting leprosy we can easily eliminate the disease.

**School Children in Leprosy Control**

**Introduction:** Leprosy control can be achieved by strengthening the prevention of disability services to people affected by leprosy. This can be made possible by empowering school children and other members of the community in early identification of new cases rather than depending on health workers only. Early identification, diagnosis and treatment before leprosy suspects have developed disabilities enables leprosy patients to be cured without disability and hence can live a normal life in the community.

**Methods:** Methodologies used in spreading the leprosy knowledge to school children and other members of the community include social marketing by the use of drama groups, school clubs, peer education lecture sessions in schools and village sensitization meetings by the use of village elders. Methodologies used in spreading the leprosy knowledge to school children and other members of the community include social marketing by the use of drama groups, school clubs, peer education lecture sessions in schools and village sensitization meetings by the use of village elders. Trained community volunteers (CVs) selected from the local areas were engaged in house to house Inter Personnel Communication (IPC) as well as NGO staff in community level IEC activities to increase leprosy awareness thus promote voluntary reporting of new leprosy cases for timely diagnosis.

**Results:** 1,158 new leprosy cases (New Case Detection Rate was 25.68 per 1 lac population) were detected among 45,09,787 out of 55,93,909 population reached during SSD. Among leprosy cases newly detected during SSD, 481 (41.5%) were MB cases, 100 (8.6%) were child cases and 29 (2.5%) grade II disabled cases. Besides, 6,818 cured leprosy cases from these SSD areas were detected among 45,09,787 out of 55,93,909 population reached during SSD. Among leprosy cases newly detected during SSD, 481 (41.5%) were MB cases, 100 (8.6%) were child cases and 29 (2.5%) grade II disabled cases. Besides, 6,818 cured leprosy cases from these SSD areas were reached and eligible cases were linked to nearest referral centres for services to prevent disabilities.

**Conclusion:** Short term community level leprosy awareness campaigns with SSDs can promote timely detection of new leprosy cases. This study demonstrated that training and engaging community volunteers during SSD has enhanced the community participation in sustaining leprosy awareness even after SSD and therefore found to be a viable strategy for new case detection during integration phase. It is recommended that such SSDs conducted periodically can contribute to prospects of sustaining leprosy control programme in future.
How to Detect More Early Cases at Low Endemic Situation with Packet Area: Analysis on 1274 New Leprosy Patients Detected from 2008 to 2010 in Guizhou Province, PR of China

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Introduction: The number of new leprosy patient has not significant decrease in recent 20 years in Guizhou province although leprosy in China maintained a low endemic situation. Guizhou was still second high prevalence rate and detection rate of leprosy in China in last 10 years. This study was to analyze the characteristics of newly detected leprosy cases in low endemic situation with packet area for improving effect of early case detection to control leprosy.

Methods: The data was collected from new case information report system and annual statistic report of leprosy in whole province.

Results: 1274 new patients were detected in Guizhou from 2008 to 2012 that included 939 male and 335 female. PB was 339 cases and MB was 935 cases as 77.8% case with skin smear positive. The average age at diagnosis was 42±16.6 years. The children (0-14 years old) accounted for 4.4%, the rate of disability Grade 2 among new patients was 36.4%, as well as the rate of disability Grade 1 was 10.1%. The average of delay diagnosis duration after the onset of symptoms of leprosy were 41.7±49.8 months. In general, close survey was a major method to detect 57.5% of new patients. Self-report, contact survey, general skin clinic and others methods account for 12.7%, 12.3%, 11.7% and 5.5% respectively. The contact survey was 22.1% as second high rate on detecting patients within 2 year of the onset of symptoms of leprosy besides 43.2% by clue survey.

Conclusion: It is a big challenge that detected leprosy case early at low endemic situation with packet area. For detecting more early patients, the quality of contact survey should be improved by professional training and supervision. Meanwhile, general skin clinic should be positively led to join case detection by new health policy.

Evaluation of Suitable Target Areas for Strengthening Leprosy Case Finding Activities in Thailand

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Introduction: Leprosy control in Thailand has achieved the goal of eliminating leprosy as a public health problem, defined by WHO, as a reduction of the prevalence rate to below one case per 10,000 population since 1994. Since then the number of registered cases and newly detected cases have gradually declined to 671 cases (prevalence rate 0.11 case per 10,000 population) and 358 cases (annual case detection rate 0.56 cases per 100,000 population), respectively in 2009. However, the proportions of grade 2 or appearance disability among newly detected cases have not changed obviously, ranging between 10% and 16% since 1994 until 2009. These high proportions of disability reflect delayed detection of new leprosy cases. Therefore, it is important to strengthen case finding activities in the areas where new leprosy cases are expected to be detected. This study aimed to evaluate the suitable criteria for the target areas for strengthening case finding activities.

Methods: The target areas for strengthening case finding activities were the districts where in the last five years, there were new cases detected continuously every year or new child cases in any year or cumulative number of detected cases equal or greater than 10. Number of new leprosy cases detected in target areas in 2010 were compared between each criteria and statistically analyzed.

Results: Based on the leprosy patient data base from 2004 to 2008, there were 140 districts with the characteristics as three criteria of target areas for strengthening case finding activities. One hundred fifty five out of 358 (43.6%) newly detected cases in 2009 and 200 out of 405 (49%) new cases in 2010 were detected from the target areas according to one and/or other criteria. The highest number of cases was detected in the areas where new child cases were detected in any year. Among 140 target districts, new cases were detected from 107 districts (76%).

Conclusion: All three criteria based on data of newly detected leprosy cases in the last five years are suitable for targeting the areas for strengthening case finding activities. And if considering only one criteria, areas where new child cases detected in any year in the last five year were the most suitable target areas. However, these suitable criteria should be re-evaluated in order to suit for very low endemic leprosy situation in the future.
Methods: Fellows of “Des(Mancha)” Brazil Project from undergraduate courses of medicine, physical therapy, psychology and social work conducted household visits with a master student in Nova Iguacu county. Contacts assessment was based on new cases of leprosy detected in 2010. The assessment points were Bacillus Calmette-Guérin scar tissue and dermatological and neurological physical examination. All suspected cases were discussed during project meetings.

Results: 168 contacts were assessed and 52 households visits were made in 2011. 69% of contacts receive Bacillus Calmette-Guérin vaccine before the diagnosis of leprosy in the household specific case and 26.8% receive the vaccine after. 88% of contacts was assessed in primary care unit and 5% in private practice.

Conclusion: There was a high incidence of contact household cases with leprosy in this sample. The household assessment is usually neglected by health services because is expected that these contacts attend to primary care units. The partnership between “Des(Mancha)” Brazil Project and Nova Iguacu county allows this relevant activity for leprosy control in Brazil.

P-346
Presentation Time: Wednesday 19/09/2013 at 13:30 – 13:40
Abstract Topic Name: Promoting Early Diagnosis
Presentation Screen Number: 10
Presenter: Sheik Hadi

IMPACT OF EXTENDED CONTACT SURVEY IN LEPROSY ELIMINATION PROGRAMME IN SELECTED AREAS OF BANGLADESH

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Introduction: Bangladesh has achieved elimination target of leprosy at national level in 1998. At that time, the registered prevalence was 0.87/10,000 populations and the grade 2 disability rate among the newly detected cases was 8.9%. At the end of 2011, the prevalence has come down to 0.22/10,000 populations but the disability grade 2 has increased to 12%. Around 4,000 new leprosy cases are being detected annually in Bangladesh in the last few years. But the proportion of Multi-Bacillary (MB) type of leprosy and the grade 2 disability among the new cases is showing an upward trend. This indicates that new cases are identified at a later stage (delayed diagnosis) reflecting some sorts of complacency on the part of the control programme. To study the impact of the Extended Contact Survey regarding early case detection and reduction of the grade 2 disability among the new cases a survey was conducted in five upazilas of Lalmonirhat and five tea gardens of Moulvibazar district.

Methods: Five upazilas of Lalmonirhat and five tea gardens of Moulvibazar district were selected purposively. One survey team was formed for each district with expert support. A total of 40,306 people were briefed on leprosy and 4,438 persons were examined physically by survey teams. All the under treatment cases (54 cases; PB: 20 MB: 34) were included as index cases in this survey. Privacy was strictly maintained during examination of the suspects. All diagnosed cases were referred to the local UHC for registration and treatment and suspects were recorded for follow up examination afterwards.

Results: A total of 4,338 people (1,709 male, 1,523 female & 1,156 children) were examined in two districts. A total of 75 new leprosy cases (PB 50 & MB 25) were identified and 60 suspects.

Conclusion: Extended contact survey is more cost effective in moderate endemic situation. Family contact examination is still a useful method for early case detection in low endemic situation. Health staff should have training on basic facts of leprosy to avoid missing of these cases.
Conclusion: Delay treatment caused by two main factors, the patients themselves and the doctor. In low leprosy situation, raising awareness of community and health related officers is needed. Expertise leprosy treatment service should be maintained at a certain level for diagnosis confirmation and correct treatment. These are to prevent delay in treatment and disability in leprosy patients.

USEFULNESS AND BENEFITS OF RECONSTRUCTIVE SURGERY IN PATIENTS WITH DISABILITIES IN BURUNDI

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Introduction: A study was conducted in Burundi to assess the outcome of patients in whom surgery was performed from 1 January 2008 to 31 December 2010 with the aim to assess the usefulness and benefits of the intervention for the patient and his family, to analyze the perceptions of patients and their families about leprosy and reconstructive surgery and to collect suggestions from respondents.

Methods: This is a cross-sectional descriptive study. A case-control study was nested in order to appreciate the difference between the operated patients (cases) and other unoperated leprosy patients (controls). The study was conducted mainly in five endemic provinces in Burundi in hospitals and reference health centers (CDS) selected according to the origin of the operated patients.

Results: 48 patients were interviewed from about 60 expected, 80%; response among cases and controls (96 respondents). The average age was 50 years for cases and 45 years for controls, with a predominance of males among cases (68.75%) and controls (62.5%) with a sex ratio respectively 2.2 and 1.66 for men. Before surgery, 75% of patients had MPP 60.4% and 4.2% of patients were totally disabled. Stigma was present in 83.3% of cases. During the surgical treatment, several types of intervention have been made and some patients underwent more than one operation. The mean duration of hospitalization was 89.2 days. Among the one with hand operations, healing was complete in 100% of cases and function returned in 77.8%, 54.3% of the one operated in foot has completely healed and all regained capacity to walk. For the eyes, healing was complete in 100% and the success rate of surgery was 90%. Back at home, all patients interviewed reported having seen a remarkable interest in surgery. Stigma has decreased from 83.3% to 4.2%. The proportion of respondents fully satisfied remains high: 93.75%.

Conclusion: This study demonstrates the relevance of rehabilitational surgery not only for the patient but also for his entourage in Burundi. It is useful for the health authorities and their partners, to include in addition to chemotherapy and prevention, the rehabilitation of disability by surgery.

EXTENSOR POLLICIS BREVIS DIVERSION GRAFT FOR CORRECTION OF Z-DEFORMITY (FORMENT’S SIGN) IN LOW ULNAR PALSY

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Introduction: The Ulnar nerve is the most common among nerve trunks to become involved. Ulnar nerve commonly involved above olacromion groove (high ulnar paralysis). Approximately 25 percent cases the lesion of this nerve occurs before nerve enters the Ulnar canal at the pisiform bone (low ulnar paralysis). In low ulnar paralysis the adductor pollicis, all intersosee and often flexor pollicis brevis (FFB) are paralysed. Loss of FFB causes interphalanegal (IP) hyperflexion (Forment’s sign) or metacarpophalangeal hypextension (Z-thumb), depending on the individual hand. Besides interfering with efficient use of the hand the appearance of the thumb also becomes cosmetically unacceptable.

Conclusion: Taken together these results suggest that there is a tendency for the investigated TMS parameters found in the hemisphere contralateral to the operated hand to approach those of the ipsilateral hemisphere. This is suggestive of plastic reorganization in line with the improvement of hand function.
BURDEN OF LEPROSY AND TREATMENT OUTCOMES AMONG CHILDREN REPORTING TO A REFERRAL HOSPITAL IN WEST BENGAL, INDIA

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Introduction: Children are vulnerable members of society. They are dependent on their guardians for reporting to health care centres for their health problems and for completion of treatment. The epidemiological profile of leprosy in pediatric populations reflects the level and efficiency of leprosy control measures in a community. The number of new leprosy cases among children remains high in many endemic districts in India, indicating ongoing transmission. The fact that young children develop visible deformities due to leprosy even when the primary health system programmes which include leprosy exist, is a reflection of the failure of our current health programmes. Leprosy in very young children has not been explored in depth with respect to outcome and treatment.

This paper explores the epidemiological profile of leprosy affected children aged less than 16 years, reporting to a tertiary leprosy hospital in an endemic state of India, during a period of three years. The outcome of treatment, reasons for noncompliance and disability burden are also considered.

Methods: A retrospective chart review was done for all patients below 16 years who visited the hospital between 2010 – 2012. Their demographic data, disease details, course of treatment were documented and analysed. After the first visit, 110 children were referred to their respective Primary Health Centres, near their homes to continue treatment. 318 patients who chose to continue treatment at the hospital were followed up. The course of the disease and compliance was documented. Home visits and counseling was done for those who were irregular and non-compliant. A brief interview was conducted and reasons for non-adherence and irregularity noted. They were encouraged to restart their treatment at the local PHC’s.

Results: 2329 newly registered untreated patients were registered at this leprosy referral hospital in the years 2010 – 2012, out of which 428 (18.3%) were children below 16 yrs. 277 (65%) patients were multibacillary cases and 151 (35.2%) were paucibacillary. 63 (15%) presented with grade 2 disability at the time of diagnosis and 33 (8%) children were smear positive. 62 (13%) children were multibacillary and 30 (7%) children with Reactions. 55 (12.8%) children were contacts; in some cases more than 2 members in the family were suffering from leprosy.

Conclusion: Despite the decline in case detection rates, actual number of cases detected in recent years still remains high in many endemic districts in India, indicating ongoing transmission. The fact young children develop visible deformities due to leprosy even when the primary health system programmes which include leprosy exist, is a reflection of the failure of our current health programmes. Leprosy in very young children has not been explored in depth with respect to outcome and treatment.

PRESENTATION SCREEN NUMBER: 2

EPIDEMIOLOGICAL SURVEILLANCE

EPIDEMIOLOGY & BIOSTATISTICS, SCHOOL OF PUBLIC HEALTH, IMPERIAL COLLEGE, LONDON, UNITED KINGDOM

A RETROSPECTIVE STUDY OF THE EPIDEMIOLOGY OF leprosy IN CEPU, PHILIPPINES - IS TRANSMISSION DECLINING?

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Introduction: Over the years, Cebu reported a good WHO- MD1 and BIG coverage among its target population. Despite these measures, a significant number of new leprosy cases are still detected in the island. We believe that more effective leprosy control measures require better understanding of transmission patterns in the island. This study was designed to assess the trends of leprosy case detection, with special attention on child leprosy as an indicator of leprosy transmission in Cebu.

Methods: With the approval of an LWM Ethical Regulatory Committee, data of Cebu leprosy cases detected in 2000-2010 were reviewed, with special attention on clinical and epidemiological description of cases. Child leprosy cases were used as major indicators on transmission trends. The overall and stratified trends in case detection rate (CDR) and CDR-ratios were calculated using multiple linear regression models. For comparison of average age of child leprosy, a Student’s t-test was used. All calculations were performed in Stata version 12.0. Mapping and geographic analyses were performed in ArcGIS 10.1.

Results: Over an 11-year period, Cebu reported a total of 3,288 leprosy cases with a declining trend. A significant decline was noted from 319 cases (CDR: 12.0) in 2000 to 204 cases (CDR 4.8) per 100,000 people detected in 2010. (regression coefficient: 0.723 cases per 10^4 population per year; P-value <0.001; 95% CI (1085 0.389)). Five-year CDRs were calculated for the period 2001-2005 and 2006-2010 and showed rates of 47.35 and 29.21 cases per 100,000 population respectively; a decrease in case detection by almost 40%.

Despite the decline in case detection rates, actual number of cases detected in recent years remains stable due to increasing population figures. Interestingly, detection rates in children have remained rather static. Moreover, over the decade, the average age on child leprosy diagnosis has not significantly changed. In general, children continue to represent slightly over 10% of annual cases, a long way from the WHO set goal of less than 3%.

Conclusion: While our study shows that despite good MD1 and BIG coverage, leprosy transmission appears to be continuing in Cebu. We believe that a new approach to leprosy control is required to tackle the issue of transmission. The most promising approach is likely to involve a direct intervention (including chemoprophylaxis) targeted at high risk groups, such as the household contacts.

PRESENTATION SCREEN NUMBER: 2
**P-316**

**Presentation Time:** Wednesday 18/09/2013 at 15:30 – 15:40  
**Abstract Topic Name:** Human Rights and Discrimination  
**Presentation Screen Number:** 3  
**Presenter:** Emma Claire Manes

**EDMOND LANDRY (USPHS CARVILLE, LA 1924-1932) AN ANALYSIS OF ONE MAN’S ADVOCACY AS TOLD THROUGH HIS LETTERS**

E. C. Manes 1

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**Introduction:** Arthur Frank (Wounded Storyteller: Body, Illness and Ethics, U of Chicago, 1995) poses the question “How [does one] live a good life while being ill?” (p. 156) The question for those who faced leprosy before treatments and cures was how to live a good life while being ill, incarcerated, stigmatized, and feared. It is not a question to be quantified with statistics, but it is a question that bears reflection. It was one of the questions I pondered in my study of my grandfather Edmond Gilbert Landry (ake Gabe Mich) a patient advocate in Carville, La from 1924-1932.

**Methods:** My search to know my grandfather, who died thirteen years before I was born, has been a long one, hampered for many years by my adherence to the family code of silence. We did not speak of my grandfather and I held tightly to that taboo even as I scrupulously searched for his life. My grandmother’s attic, on bookshelves, in books, and in cabinets. Stifled by my love for my grandmother, his wife, I did not speak about him for most of my life. I absorbed the message of silence that she maintained (too long) out of fear for their children rather than out of stigma toward her husband. The dis covey of letters from my grandfather written between 1924 and 1932 to his family, the medical community, and governmental agencies gave me the impetus to study my grandfather’s life more deeply. Aided by scholarship, I set about discovering the man I had longed to know and who had haunted my heart. Through reading, academic study, dialogue with scholars and Hansen’s disease survivors, research in Carville, and close and continuous reading of my grandfather’s letters, I found a portrait of him in his own hand.

**Results:** I experienced the anguish he must have felt when at 33 years of age he voluntarily entered the United States Public Health Services Hospital in Carville, La. I found a man despite his illness quickly became an active advocate for the needs of patients more needy than he. He was a man missing family, his wife’s love, the consolation of his religion and struggling with the temptation to abscond or end his life; yet he maintained dignity and his concern for others. Reading and studying the letters of Edmond G. Landry in his own hand expanded my appreciation not onlly of his life but the life of so many other silent advocates who lived their lives with dignity and grace in unglitified surroundings. Their lives are witness not only for leprosy patients but for all for whom advocacy is a way of life.

**Conclusion:** My research has given me an answer to the question “how to live a good life while being ill?” My grandfather’s life is a specific and identifiable example of the answer that Arthur W. Frank himself gave. Living a good life means living a life of witness for others and a desire for their good. Edmond Landry and so many others have done just that while living with leprosy.

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**P-319**

**Presentation Time:** Wednesday 18/09/2013 at 15:50 – 16:00  
**Abstract Topic Name:** Human Rights and Discrimination  
**Presentation Screen Number:** 3  
**Presenter:** Stephen Walker

**THE DEPORTATION OF A MIGRANT WORKER WITH LEPROSY**

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**Introduction:** A 29 year old Ethiopian man, GD migrated to Kuwait in September 2010 to work as a cleaner. In December 2011 he noticed a plaque on his left cheek. GD was seen at a hospital and prescribed topical treatment. He developed more skin lesions. After seeing a private Sri Lankan dermatologist GD was diagnosed with leprosy 11 months after he had first sought medical advice. However he was not informed of his diagnosis but was sent to another hospital where he was admitted. He was given rifampicin 600mg daily and dapsone 100mg daily for 14 days. He was still not informed of the diagnosis. He was told to stay in his hospital room which he shared with a man from India.

On the third day following GD's hospitalisation people wearing masks went to his flat and burnt his clothes and bedding. His three flatmates (all Ethiopian nationals) were taken by these "officials" to have a clinical examination. GD’s passport and outstanding salary was taken from his employers. At the hospital an individual who did not identify himself wished to take a photograph of GD’s face but not his lesions. When GD refused the man said he would call the police. GD agreed to the photograph after being persuaded by hospital staff. His fingerprints were taken two days later by a uniformed police officer who wore a face mask. His Indian roommate was also fingerprinted, taken from the hospital and did not return. With no official notice GD was taken in a marked police car to a detention centre and 12 hours later to the airport. Without passing through normal airline and immigration channels he was put directly on a flight back to Ethiopia. On the flight no special precautions were taken. He had had no contact with his embassy and had not had the benefit of an independent Amharic translator.

**Methods:** On his return to Ethiopia GD attended the leprosy clinic and showed us the short handwritten discharge summary and 52 capsules of rifampicin and 120 tablets of dapsone he had been given. We diagnosed borderline lepromatous leprosy with associated TIR and started him on WHO MB MDT and immunosuppression. We asked him how he felt about his experience. GD said that at the time he had been very afraid but after returning to Ethiopia he felt angered by the way he was treated which had made him “feel like an animal”.

**Results:** The delay in diagnosis of leprosy is a well recognised phenomenon in low endemic and non-endemic countries and often affects migrants in these settings. In Kuwait on being diagnosed with leprosy foreign nationals are referred to an infectious diseases hospital to start treatment and then “sent back to their respective countries” to complete it. In the Farwanya region of Kuwait between 2003 and 2008 46 people were diagnosed with leprosy and of these almost 90% were foreign nationals. The authors describe as “significant” and “alarming” an almost ten-fold increase in the proportion of Kuwaitis diagnosed with leprosy in their study compared to a previous one with a different methodology published 20 years earlier. It was not shown how they arrived at this “significant” and “alarming” finding. We feel such language based on dubious statistical methodology is inflammatory and misleading.

**Conclusion:** The lack of information and respect accorded this individual prior to his removal from Kuwait and a member state of the United Nations infringed his human rights undermining the General Assembly resolution of 2010 and underlining the continued need for lobbying of governments to all those concerned about the welfare on people diagnosed with leprosy. We do not believe this case is an isolated incident.
“A STUDY OF ULcer HEALING IN LEPROSy WITH WOUNDEx DRESSING”

P. R. Rao 1, R. K. Singh 1, B. Abraham 1, K. Bhattrai 1, K. Kolaman 2

1NGO, LEPPRA Society, Patna, 2NGO, Little Flower Leprosy welfare Association, Raxaul, east Champaran, India

Introduction: Leprosy is a chronic infection of Myco-bacterium Leprae affecting peripheral nerves. Involvement of “Post-Tibial Nerve” causes anaesthesia on soles and cause trophic ulcers on feet, which are synonymous with social stigma. Healing of ulcers has thus become an important intervention in improving quality of life of persons affected by leprosy.

Ulc er Management: While rest, aesthetic dressings and appropriate protective footwear are the best conventional methods regularly used in ulcer management practically quick healing of ulcers and improving mobility is what is expected by persons affected by leprosy. Innovative methods of ulcer treatment are constantly explored.

Wound Ex is an external application which has been found to be effective to improve healing process in certain conditions. Wound Ex contains Zeolite-talc complex. WoundEx is a sterile dressing, which stops bleeding and closes wounds. Its support healing in chronic wound. This improve healing of ulcers in terms of time and improve mobility of persons affected by leprosy using a new ulcer dressing technique.

Methods: 10 patients admitted in in patient wards of little flower hospital under care of Mr. Abraham, Hospital manager and 10 patients seeking treatment for ulcers in LEPPRA referral centre in Munger will be included in the study for treatment with Wound Ex. Equal number of patients taking conventional ulcer management will be included as control group.

A format has been designed to assess the ulcer healing process periodically. The ulcer healing will be measured by recording warmth and size of ulcer mouth in two directions and recorded on every three day basis. WoundEx pouch will be dressed on the ulcer with Gauze bandage and will change every three day. The new WoundEx pouch will be dressed without applied of any ointment/antiseptic. During the WoundEx treatment patients will not take any antibiotic. Photos of each patients and each dress are captured to monitor and see the progress of wound healing.

Results: The initial results show decrease of ulcer surface by 1cm Cms among patients treated with Wound Ex within 9 days (3 WoundEx pouch) without any other supplement or antibiotics. The study is currently taken and detailed results of all patients will be presented in the paper.

Conclusion: The preliminary progress was very encouraging. This can be used at larger scale for the treatment of ulcers among leprosy patients.

ASSESSMENT OF DISABILITY CARE SERVICES AND ITS IMPACT – A FIELD BASED STUDY IN URBAN SLUMS OF MUMBAI

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1Leprosy and Dermatology, Bombay Leprosy Project, Mumbai, India

Introduction: Bombay Leprosy Project (BLP) covers an urban population of 2 million comprising mainly of slums including Dharavi the biggest slum in Asia. We present our experience in BLP pertaining to field based disability care and the study of its impact during the period from 2005 to 2012.

Methods: Subsequent to integration of leprosy services in Mumbai in July 2004 the leprosy elimination programme was reorganized and besides case detection activities, the Prevention of deformity and care programme (POD) was strengthened in the urban slums of Mumbai (Population: 12 million). Though complex health delivery structures are in place in the metropolis specialized disability care service is often lacking. In this background BLP is offering services through its Main Referral centre and a few satellite clinics which are strengthened and retained at the ward level after integration. The existing disabled patients (treatment completed and under follow up) are identified in the project area with grade I and grade II and assessment of their deformity status is done. Special records of disability assessment of individual patients are maintained. Ward wise maps to indicate the location of patients distributed is maintained for planning delivery of services and follow up. Disability care services like splints, MCR footwear, dressing of ulcers, goggles, foot drop splint have been provided depending on the type of deformity. Wax baths have been provided in these satellite clinics and extension units for facilitating wax therapy. Additional physiotherapy measures like muscle stimulation was provided for improving muscle function in early nerve function impairment. Clinical impact of services was carried out to ascertain status of deformity in patients with only grade II deformity receiving services using a simplified proforma.

Results: It was observed that in hand maximum improvement was found in 13 (59%) patients with abduction deformity and in 46 (33%) patients with mobile claw hand and in foot in 40 (45%) patients the ulcers healed well while in 8 (50%) patients foot drop was reversed. In the face in 33% patients with lopagophalaxes, the nerve function was restored.

Conclusion: We believe that ascertaining the disability burden and distribution is a must to plan and implement field based POD care and services in the community wherein reasonable justice can be done to patients provided disability is identified early and services administered with regular follow up for compliance.
P-419
Presentation Time: Wednesday 18/09/2013 at 15:30 – 15:40
Abstract Topic Name: Leprosy Control
Presentation Screen Number: 5
Presenter: Wanghua Li

ANALYSIS ON THE EFFECT OF LEPROSY CONTROL DURING THE 11TH FIVE-YEAR LEPROSY PROGRAM IN HUBEI PROVINCE CHINA

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1Hubei Provincial Center for Disease Control and Prevention, Wuhan, China

Introduction: To evaluate the effect of leprosy epidemic situation monitored during the period of the 11th five-year (2006-2010) leprosy control program in Hubei Province, and to provide the information for government departments to develop the next five-year leprosy control program.

Methods: Descriptive statistical analysis was performed on the data obtained from Hubei province health system during 2006-2010, according to the assessment criteria stipulated by the state.

Results: During the period of the 11th five-year leprosy control program, Hubei province reported 227 leprosy cases, including 179 newly detected cases, and the early detection rate was 57.5%. Among all new cases, forty new cases had grade 2 disabilities which accounted for the disability rate of 22.36%. The number of counties which did not meet the leprosy elimination goal (prevalence less than 1/100,000) which was issued by China Ministry of Health decreased from 10 in the late 10th five-year (2001-2005) program to 2 at present.

Conclusion: The implementation of leprosy control program in Hubei province has achieved the significant progress. According to the analysis on leprosy epidemic situation after goal achieved and extensive experience of existing leprosy services. To deal with this problem, establishment of specialized leprosy unit, further interventions should be done by providing advanced leprosy knowledge and skill to health providers and of its networking units; on the job training for laboratory officials, physiotherapists, pharmacists; providing leprosy screening skill to peripheral health providers of sub-district health promotion hospital. Regular monitoring and evaluation should be done in area to ensure the quality and the sustainability of leprosy service of Mae-Sareng hospital and the long run.

P-427
Presentation Time: Wednesday 18/09/2013 at 15:40 – 15:50
Abstract Topic Name: Leprosy Control
Presentation Screen Number: 5
Presenter: Kissawat Somwang

A SURVEY AND ASSESSMENT OF THE READINESS OF THE MAE - SARENG HOSPITAL TO BE IMPROVED AS A SPECIALIZED LEPROSY UNIT UNDER LOW PREVALENCE

K. -.- Somwang 1,* and Dr. Boossobun Chua-Intra, Miss Vijitra Thareesuwan and Mrs. Toungporn Autilp
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Introduction: After achieving leprosy elimination in 1994, leprosy became less priority, doctors and public health officials had less experiences in leprosy leading to mis-diagnosis and delayed treatment, the potential cause of disability. This negative consequences could be interpreted from the proportion of grade 2 disability among newly detected leprosy cases that fluctuated between 11.36-16.54% over the past 10 years (2001-2010). It also reflect the less effectiveness of existing leprosy services. To deal with this problem, establishment of specialized leprosy unit was promoted in order to sustain expertise and quality leprosy services. This study was aimed to survey and assess the readiness of ‘Mae-Sareng’ hospital to be improved as a specialized leprosy unit.

Methods: This qualitative research was done by depth interviews with the director of the Office of Disease Prevention and Control, 10 Chiangmai and the director of the Office of National Health Insurance, 1 Chiangmai, Mae-Sareng hospital administrators, medical chief of clinical dermatology, head of department of social medicine and health, person responsible for leprosy, leprosy patients were treated, community leaders, people who serviced dermatology, health officers of sub - district health promotion hospital and health officers of the Mae-Sareng hospital responsible for leprosy.

Results: It was found that clients, community leaders and leprosy patients commented that Mae-Sareng hospital was appropriate to be a specialized leprosy unit. It was also found that Mae-Sareng hospital was ready to be improved as specialized leprosy unit because of its potential human resource, budget, equipment, and management. The hospital’s officials willing to enhance their knowledge and skill related to leprosy treatment in order to provide more quality leprosy services to the people in their catchment area.

Conclusion: As it was found that Mae-Sareng hospital was ready to be improved as specialized leprosy unit, further interventions should be done by providing advanced leprosy knowledge and skill to health providers of the Mae-Sareng hospital and of its networking units; on the job training for laboratory officials, physiotherapists, pharmacists; providing leprosy screening skill to peripheral health providers of sub-district health promotion hospital. Regular monitoring and evaluation should be done in area to ensure the quality and the sustainability of leprosy service of Mae-Sareng hospital. And the long run.
**P-365**

**Presentation Time:** Wednesday 18/09/2013 at 15:30 – 15:40  
**Abstract Topic Name:** Detection and Treatment of Reactions  
**Presentation Screen Number:** 6  
**Presenter:** Priscila Andrade

**THE AUTOCLINIC EFFECT OF TNF IN THE ACTIVATION OF HUMAN SCHWANN CELL DURING MYCOBACTERIUM LEPRAE INFECTION**

P. R. Andrade 1, T. P. Amadeu 1, A. C. C. da Silva 2, E. N. Sarto 3

1Oswaldo Cruz Foundation, rio de janeiro, Brazil  
2B. S. Ankad 1,*

Presentation Time: Wednesday 18/09/2013 at 15:40 – 15:50  
Abstract Topic Name: Detection and Treatment of Reactions  
Presentation Screen Number: 6  
Presenter: Priscila Andrade

**TREATMENT OF LEPROSY REACTIONS AND NEURITIS: PRESERVING OR IMPROVING NERVE FUNCTION?**

P. W. Roche 1,*, B. M. Bhattarai 2  
1Green Pastures Hospital & Rehabilitation Centre, Pokhara, Nepal  
2NIH Clinical Center, NIH, Bethesda, MD, USA

**Results:** By February 2013, 218 patients (90 Type 1 reaction, 63 neuritis and 56 ENL) and were enrolled and outcomes of treatment in 96 patients were presented. Of these, VMT scores remained the same or improved in 93% T1R (24% 2 point or greater improvement in ST & 69% with no function loss below scores at presentation); 96% of ENL (23% improved, 73% no decline) and 83% neuritis (29% and 54%). Sensory testing scores showed similar patterns with ST scores the same or improved by 2 points or more in 95% T1R (28% improved and 67% no decline); 91% ENL (17% improve, 74% same) and 79% neuritis (25 improved and 54% no decline). Nerve function outcomes were better in younger patients (< 40 years) but outcomes were not improved by longer courses of treatment (>20 weeks). Recrudescence of symptoms was observed in 29% of patients but nerve function outcomes were similar to patients without recrudescence. SALSA scores measuring activities of daily living showed marked improvements in patients treated for ENL (mean decrease of 8 points); T1R (3 point decrease) and neuritis (2 point decrease). Despite health education on signs and symptoms of leprosy reactions and neuritis, the average time between first symptoms and presentation for treatment was 87 days.

**Conclusion:** The treatment of reactions and neuritis at GPHRC does not use standard protocols rather it depends on clinical and nerve function assessments. Consequently, patients are being treated for very long periods of time and we will only be able to analyse the full impact of the project some months after its completion. The measurements of nerve function (VMT and ST) and of activity limitation (SALSA) have been used widely, but have not been standardised internationally. This project will make a significant contribution to this important issue, but we are still to define a ‘successful’ treatment outcome. Is preservation of nerve function a ‘success’? How large a change in overall activity limitation as measured by the SALSA scale should be expected?

**P-366**

**Presentation Time:** Wednesday 18/09/2013 at 15:50 – 16:00  
**Abstract Topic Name:** Detection and Treatment of Reactions  
**Presentation Screen Number:** 6  
**Presenter:** Paul Roche

**TREATMENT OF LEPROSY REACTIONS AND NEURITIS: PRESERVING OR IMPROVING NERVE FUNCTION?**

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RELEVANCE OF VOCATIONAL CENTRES IN PROMOTING GAINFUL EMPLOYMENT AMONG YOUNG ADOLESCENTS AFFECTED BY LEPROSY

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Introduction: The Leprosy Mission Trust India (TLMTI) is committed to walk the last mile, till leprosy is totally eradicated and every affected person and her/his family is rehabilitated. TLMTI runs six Vocational Training Centre’s (VTC’s). In VTC Bankura 35% are leprosy affected students out of total admissions, VTC Nashik 29% are leprosy affected students. VTC Vadathorassaul 10% students affected by leprosy. VTC Champa 29%, Faizabad 26% and Vijianagaram 14%. These centres have been in existence for 10 to 30 years and contribute to the community with their core competence in the areas of vocational training and job placement for the young affected for leprosy or children from families affected with leprosy. In a year approximately 1000 students are trained and graduates through these 6 VTC’s. The VTCs have an excellent record of placement of approximately 80-90% year.

This study was conducted to ascertain how relevant the VTCs are in promoting gainful employment of graduates and to recommend strategies for repositioning the VTCs to be recognized as regional centres for the same.

Methods: This is a cross sectional study. Data was collected based on random samples of an average of 08 students per year since 2007-2008, and added to the list per year for a period of 5 years. Thus a total 240 students were selected from the VTCs. Research tools used were one on one interview with graduates, their family members (50 families), employers (20 employers) and colleagues (50) at work place. Focused Group discussions were initiated in communities where the graduates reside.

Results: Analysis of 5 year trends of placements reveals that larger number of graduates from all VTCs go into waged employment, ranging from 53% in 2007 - 91% in 2011. Very few graduates from all the VTCs are self employed ranging from 0% - 9% in 2011. 80% of the graduates interviewed were found well placed in leading companies and accounted good growth experience. Skills of the graduates were found reliable, hardworking and committed employees. All the graduates were working as per fair labour conditions. 90% job placements with corporate’s in cities involve migration and the 55% of the graduates left the employment after marriage. 95% of the employers were satisfied with the quality of vocational training and the conduct of the graduates, however they expressed the need for a systematic follow up and feedback mechanism to bridge the gaps between training and actual requirement at the workplace.

Conclusion: The VTCs play a crucial and relevant role in promoting gainful employment of individuals affected by leprosy. The choice of self-employment could be emphasized during the vocational training. The VTCs could encourage and provide support to initiate self-employment units through required entrepreneurship training; business development skills and linkages with government schemes and local banks for self-employment, so that the graduates are not limited to salaried jobs. The placement team could also explore possibilities for self-employment or group enterprises for the female trainees with the support of government schemes and influencing them to have better livelihood opportunities through Government and Non-Government funds.

REAL INTEGRATION OF PEOPLE HAVING PAST HISTORY OF LEPROSY (ACTIVITIES IN A COMMUNITY-BASED CLINIC IN JAPAN)

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Introduction: For 89 years, Hansen’s disease (HD) had been managed under segregation law in Japan until its legal abolition in 1996. Now we have almost no case except for sporadic immigrant cases, but there are about 4500 people having past history of HD, and half of them are expected to be living in the community. These people usually don’t visit local clinic worrying about the disclosure of their past history. In Japan, discrimination of HD has been decreasing, but they themselves cannot get out of their gloomy depressed memories. We started community-based clinic 8 years ago near Tokyo, aiming real integration of these people into the society.

Methods: Based on about 50 medical records of ex-patients of HD in our clinic, we review their medical and social situations. The diseases frequently occur in daily lives, vigilant follow-up study is inevitable to find early sign of relapse. Now we have 4 cases having some active signs of HD. In one relapsed case, drug-resistance related mutations were found in 3 drugs; sign that the patient had not taken MDT. They are kept under observation is inevitable to find early sign of relapse. Now we have 4 cases having some active signs of HD. In one relapsed case, drug-resistance related mutations were found in 3 drugs; sign that the patient had not taken MDT. They are kept under observation is inevitable to find early sign of relapse. Now we have 4 cases having some active signs of HD. In one relapsed case, drug-resistance related mutations were found in 3 drugs; sign that the patient had not taken MDT. They are kept under observation is inevitable to find early sign of relapse. Now we have 4 cases having some active signs of HD. In one relapsed case, drug-resistance related mutations were found in 3 drugs; sign that the patient had not taken MDT. They are kept under

Results: 1) Their ages are in the range of 50s and 80s, on the average 71.6 years old; 10 years younger than the people living in sanatoria. Most of them have no communication with their relatives.

2) HD-related disability rate is very high. 70%, 67.4%, 93% of their faces, anterior part of eyes, upper and/or lower limbs respectively have grade 1 or 2 disabilities. They frequently need surgical, ophthalmological care, or management of chronic neureits.

3) They have common adults’ diseases and 3 developed cancer of their lung, prostate and colon. When they need treatment of other specialist, they usually hesitate worrying about their past history. In these occasions, the support of Medical Social Worker (MSW) is greatly helpful to persuade them to get most appropriate medical cares.

4) In Japan, many ex-patients haven’t received WHO-MDT when their disease was active, so the observation is inevitable to find early sign of relapse. Now we have 4 cases having some active signs of HD. In one relapsed case, drug-resistance related mutations were found in 3 drugs; DDS, RFP, and OFX. In Japan, multi-drug resistance is not rare in relapsed cases.

5) Through frequent study, many volunteers, students, Buddhists’ group etc. achieved good understanding about HD. They supported and encouraged ex-patients to step in the local
INTEGRATED SELF HELP GROUP DEVELOPMENT (CASE STUDY FROM CDI PROJECT KARNATAKA, INDIA)

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Abstract Topic Name: Social Aspects and Quality of Life

Presentation Screen Number: 8

Presenter: Shirish Shegaonkar

Introduction: Although illegal, the devadasi custom has been in place for centuries and involves dedicating young girls at the temple so they are able to 'provide sexual services' to the men of their community. Belgium District in the north of Karnataka, India has been a traditional home of the devadasi practice. However, it is not only devadasis in these communities who are marginalized and subject to human rights abuses. Other marginalized groups including people affected by leprosy, people living with HIV, People with disability and those from scheduled castes, tribes, many of whom are discriminated against. Their social exclusion, health issues and lack of empowerment have led to a downwards spiral into extreme poverty. The Choice Dignity & Integration project focused on increasing the earning capacity of People affected by leprosy. Devadasis & Other Disability; improved access to regular – mainstream – services and resources; women empowerment and ultimately it is expected that through this program the socio-economic status of its target will be uplifted and in so doing improve the quality life of the clients. One such SHG is Karmeeva Devi SHG Manoor Village Hukerri Taluka in Belgaum, Karnataka. A volunteer of the village willing to help improve the living conditions of the residents of the village underwent the pre-requisite training and facilitated the formation of Karmeeva Devi SHG

Basis of Integration: Total 17 females in the Self Help Group (5 People affected by Leprosy, 5 from General Disability, 4 Ex Devadasis and three from Backward class) were organized in a group and facilitated to move ahead to improve their living conditions.

Methods: Data was collected largely from documentation, records, interviews, Focus Group discussion direct observations and participant observation.

Results: Self Help Group Micro finance activities has reduced the incidence of poverty through increase in income, enabled the poor to build assets and thereby reduce their vulnerability. Increased community participation like involved in Gramsabha meeting in the village level Pandhayat.

Conclusion: The Study has revealed that the leprosy affected and other disabled has shown increased participation in the decision-making process. The group members has shown increased social acceptance and approach to the holistic, sustainable, integrated, development of human life Micro-Credit System.
COMPARISON EXPRESSION OF TL2/1, NF-κB P105/P50, NF-κB P65 AND TNF-κB P65 AND TNF-κ IN MACROPHAGES OF ERYTHEMA NODOSUM LEPROSUM WITH MULTIBACILLARY LEPROSY PATIENT AS MARKERS OF INNATE IMMUNE ACTIVITY

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Introduction: Erythema Nodosum Leprosum (ENL) is one of the complication in Multibacillary (MB) leprosy. Wewalka in 1969 proposed a theory that ENL is based on the mechanism of hypersensitivity type 3 (Arthus like phenomenon), with histopathology finding shows abundant of neutrophil as an inflammatory cells. But however, this theory remains difficult to prove. The cause, mechanism, and treatment of ENL also remain highly problematic. Previous studies revealed a high level of TNF-α in circulation and skin as well on ENL. whereas this phenomenon can not be explained by complex immune theory. Detailed mechanism of TNF-α increased during ENL is still unclear and no studies have obtained the expression of TNF-α, especially in macrophages, which is the primary host cell for M. leprae in dermis layer. These studies have identified possible evidence involvement of innate immune system in acute episode of ENL, based on the high level of TNF-α. Objective of this study is to compare the expression of TL2/1, NF-κB P105/P50, NF-κB P65 and TNF-α in dermis macrophages cells. Statistical analysis was performed using Mann-Whitney U test.

Methods: A cross sectional study design has been performed using 21 ENL and 21 MB leprosy patients without ENL as a comparison group, in Out Patient Clinic of Dr. Soetomo Hospital, on February 2010 until December 2010. Immunohistochemical staining method using specific monoclonal antibody for TL2/1, NF-κB P105/P50, NF-κB P65 and TNF-α was performed to both groups to determine the expression of dermis macrophages cells. Characterization of the extracted cells by flow cytometry.

Results: The result showed significant different expression of TL2/1 (p = 0.00), NF-κB P105/P50 (p = 0.00), NF-κB P65 (p = 0.00), and TNF-α (p = 0.00) in dermis macrophages between ENL and MB group without ENL group.

Conclusion: The innate immunity was activated during ENL reaction, as shown by strong higher expression in TL2/1, NF-κB P105/P50, NF-κB P65, and this is caused by the increased of TNF-α expression.

P-100

IN SEARCH OF A SURROGATE MARKER FOR PROTECTIVE IMMUNITY IN M. LEPRAE INFECTION.

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1DHHS/HRSA/HSB/National Hansen’s Disease Programs, Baton Rouge, IDRI, Seattle, 2Pathobiological Sciences, Louisiana State University, Baton Rouge, United States

Introduction: Protecting effective immunity to Mycobacterium leprae infection is fundamental to guiding vaccine development and clarifying the distinguishing characteristics of susceptibility and resistance to leprosy. This study used previously identified protective and non-protective antigens to examine the nature of protective immunity against M. leprae infection in mouse foot pad model.

Methods: C57BL/6 mice were vaccinated with either heat killed M. leprae (HML), recombinant ML6SB, recombinant ML468, or adjuvant alone. EM005, a proprietary formulation was used as adjuvant. After vaccination mice were challenged with a high dose of live M. leprae (1x10^7 / hind foot pad). Lymph nodes and foot pads were harvested at 4, 6, 8 and 12 weeks post challenge for characterization of the extracted cells by flow cytometry.

Results: ML6SB and HML, antigens capable of providing protection in the mouse foot pad model, elicited a strong local influx of CD4+ cells after a high dose challenge. A CD4+ T cell influx was not observed when mice were immunized with ML468, an antigen incapable of providing protection. The majority of the CD4+ cells present in the foot pads of heat-killed M. leprae and ML6SB vaccinated mice were of activated CD44+ and CD62+ phenotype when compared to ML468 or adjuvant alone treated mice (P<0.001). Although the influx of activated CD4+ T cells in the foot pads of heat-killed M. leprae and ML6SB vaccinated mice was much reduced when compared to CD4+ T cell influx, the majority of CD8+ T cells present in the foot pads of heat-killed M. leprae and ML6SB vaccinated mice were also of activated phenotype. Similar results were observed when primed / memory (CD44+CD45RB+) CD8+ T cells were assessed. The importance of CD4+ T cells in the protective response against M. leprae was further established using knock-out mice where CD4 knock-outs were protected following immunization with heat-killed M. leprae. In contrast, no protection was observed in CD4 knock-out mice following the same immunization protocol.

Conclusion: This study implicates CD4+ T cells as major cellular components of protection against M. leprae in the mouse model. Defining the proper correlation(s) of protective immunity, can provide an evaluation tool that can be used to streamline vaccine testing by shortening the time necessary for assessing effective vaccines and provide potential measures for monitoring vaccine efficacy in humans.
Gujarat state proposed a special activity plan for 9 high endemic districts. This SAP consisted of active search, capacity building of staff, Information Education Communication (IEC) awareness drive, enhanced monitoring with supervision and validation of cases. Technical details were prepared and activities facilitated by GLRA India as an ILEP partner in Gujarat. Gujarat state achieved elimination status (Prevalence Rate - PR <1/10,000 Population) in October 2004. The PR (per 10,000 population) was 0.82 and 0.81 in the year 2007 and 2012 respectively. Annual new case detection rate (per 1,00,000 population) of the state was 12.4 in 2007 and 12.2 in 2012. A Total of 7228 (March 2008) and 7496 (March 2012) new leprosy cases were detected in the state. Out of the total new cases detected in India, Gujarat state contributed 5.7% (2011) and 6% (2012) towards the same. The grade 2 proportion was 2.7 (2007) and 2.3 (2012) while the child proportion was 10.2 (2007) and 9.3 (2012).

Methods: Sixty six blocks of 9 districts were covered. A detailed subcenter level micro planning was done. An intensive IEC awareness drive was carried out for 15 days, there after house to house survey was completed. Each survey team consisted of a health supervisor or a male multipurpose health worker (MPW) and a female multipurpose health worker, an ASHA (Accredited Social Health Activist) or a community volunteer. A Total of 3591 survey teams were formed. A survey of 10 days for Dang district (hard to reach tribal area) and 6 days for each of the remaining 8 districts was completed. There were 4 levels of training organised for SAP. Block health officers, Medical officers, Health workers and ASHA-community volunteers were trained subsequently at State, District, Block and PHC levels.

Results: A population of 1,19,00,169 was enumerated and 89,46,390 were examined out of a total population of 2,09,92,793 as the urban area was not covered. 5497 villages were surveyed. A Total of 2,704 new leprosy cases were detected, of which 71.6% (n=1937) cases were validated by the district nucleus team and remaining cases validated by the medical officers. 36% new leprosy cases were detected during SAP activity in comparison to the average number of total cases detected each year (7398 in 11th five year plan period 2007-2012).

Conclusion: A total of 4407 new leprosy cases were detected during the regular programme before the SAP. SAP indicators (Grade 2 proportion, child proportion) are similar to state’s annual indicators except the MB proportion (31.3) which shows early detection and New Case Detection Rate of 22.2 (NCDR per 1,00,000 population) which indicates disease endemicity in high endemic districts. SAP NCDR was 22.2 in comparison to the state’s average ANCOR of 12.2 (2008-2012) which shows well organised grass root level activities with intensive supervision and monitoring. Therefore regular SAP is essential to promote early case detection and achieve the 12th five year plan objectives of the National leprosy eradication programme (NLEP).
Thursday 19 September 2013

Programme
### Thursday 19 September 2013

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| 09:00 - 10:30 | Plenary Session 3: Reducing transmission  
Chair: Cairns Smith  
Speakers: Prof Stewart Cole, Prof Annemiek Geluk, Prof Jan Henrik Richardus | Plenary Room A & B • Level 1 |
| 10:30 - 11:00 | Coffee Break and ePoster sessions  
Foyer • Level 0 |                                |
| 11:00 - 12:30 | Session 37  
Detection and Treatment of Reactions  
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| 11:00 - 12:30 | Session 38  
Social Aspects and Quality of Life  
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| 11:00 - 12:30 | Session 39  
Genetics and Leprosy  
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| 11:00 - 12:30 | Session 40  
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| 11:00 - 12:30 | Session 41  
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| 12:30 - 14:00 | Lunch and ePoster sessions  
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Chemotherapy - Newer Drugs  
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| 15:30 - 16:00 | Coffee Break and ePoster sessions  
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| 17:00 - 18:00 | ILA General Meeting  
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**Detection and Treatment of Reactions in Leprosy**

**Chair:** Dr VV Pai

**Room:** Work Group Area

- **DETECTION AND TREATMENT OF REACTIONS IN LEPROSY**
  **Presenter:** Vivek Pai

- **POST-MDT LEPROSY NEUROPATHY: DIFFERENTIALLY DIAGNOSING REATIONAL NEURITIS AND RELAPSES**
  **Presenter:** Sérgio Luiz Antunes

- **GLOBAL GENE EXPRESSION STUDIES OF PBMC DURING REVERSAL REACTIONS SHOW INCREASED EXPRESSION OF MICROBIAL RECOGNITION RECEPTORS**
  **Presenter:** Kathryn Dupnik

- **RCT ASSESSING CICLOSPORIN IN TYPE 1 REACTION TREATMENT, IN ETHIOPIA**
  **Presenter:** Saba Lambert

- **MIXED DC/MACROPHAGE LINEAGE PHENOTYPES IN ACTIVATED LEPROMATOUS LESIONS DURING REVERSE REACTION**
  **Presenter:** Priscila Andrade

- **RCT OF AZATHIOPRINE VERSUS PREDNISOLONE IN THE TREATMENT OF TYPE 1 REACTION AND NEURITIS**
  **Presenter:** Dr Annamma John

**Social Aspects and Quality of Life**

**Chair:** Mrs Janine Ebenso

**Room:** C & D

- **LIFE COURSE PERSPECTIVES ON EXPERIENCES OF AND RESPONSES TO LEPROSY-RELATED STIGMA IN WESTERN NIGERIA**
  **Presenter:** Bassey Ebenso

- **ASSESSING SOCIAL DISTANCE AS STIGMA PREDICTOR: EXPLORING SILENT STIGMA TOWARDS PEOPLE AFFECTED BY LEPROSY FROM A COMMUNITY PERSPECTIVE IN INDONESIA**
  **Presenter:** Dadun Dadun

- **UNDERSTANDING ADVERSE EXPERIENCES IN A STIGMA REDUCTION PROJECT IN CIREBON, INDONESIA: DIAGNOSIS AND CONCEALMENT**
  **Presenter:** Ruth Peters

- **A CASE-CONTROL STUDY COMPARING THE QUALITY OF LIFE OF PATIENTS UNDERGOING LEPROSY TREATMENT TO PEOPLE CURED OF LEPROSY AND CONTROLS IN VIET NAM**
  **Presenter:** William Hunt

- **DISABILITY ADJUSTED WORKING LIFE YEARS (DAWLYS) OF LEPROSY AFFECTED PERSONS IN INDIA**
  **Presenter:** Mr Royce Kurian

- **LIFE SATISFACTION AND STIGMA PROFILE OF LEPROSY PATIENTS WHO HAVE BEEN RELEASED FROM TREATMENT**
  **Presenter:** Mrs Valsa Augustine

**Genetics in Leprosy**

**Chair:** Professor Indira Nath

**Room:** E & F

- **GENETIC SUSCEPTIBILITY AND SKIN CHEMOKINE EXPRESSION ACROSS THE SPECTRUM OF LEPROSY**
  **Presenter:** Dr Deanna Hagge

- **VITAMIN D RECEPTOR GENE POLYMORPHISMS AND ITS ROLE IN LEPROSY SPECTRUM**
  **Presenter:** Mr Venkata Sanjeev Kumar Neela

- **GENETIC RESEARCH OF LEPROSY**
  **Presenter:** Prof Furen Zhang

- **GENOTYPE IMPUTATION ANALYSIS OF LEPROSY SUSCEPTIBILITY GENE IN THAI POPULATION**
  **Presenter:** Ms Sukanya Wattanapokayakit

- **HUMAN GENETICS OF LEPROSY POLARIZATION**
  **Presenter:** Jean Gaschignard

- **GENETIC DIVERSION OF NAT2 AND CYP2E1 GENES IN LEPROSY PATIENTS FROM THREE DIFFERENT GEOGRAPHIC REGIONS FROM BRAZIL**
  **Presenter:** Adalberto Santos
### Leprosy Control
**Chair:** Dr P Krishnamurthy  
**Room:** A & B

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Presenter: Shirish Sehagunkar

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**Detection and Treatment of Reactions**

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Presenter: Sawadogo Michel
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Presenter: Ms Yohanna Abdou

Surgical Rehabilitation
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Presenter: Pankaj Gupta

Reconstructive Surgery
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RECONSTRUCTION OF SOLE OF THE FOOT FOLLOWING PLANTAR ULCERS
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ASSESSMENT OF THE QUALITY OF LEPROSY CONTROL SERVICES FROM THE MEDICAL STAFF’S PERSPECTIVE IN ZHEJIANG PROVINCE, CHINA
Presenters: Mr Gao Yanwei and Mr Shen Yunliang
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EVALUATING EFFECTS OF LEPROSY CASE FINDING AND HEALTH EDUCATION IN MIGRANT POPULATION IN ZHEJIANG PROVINCE, CHINA
Presenters: Mr Gao Yanwei and Mr Shen Yunliang
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MENTAL HEALTH STUDY ON PATIENTS LIVED IN GRASSROOTS LEPROSARIA OF ZHEJIANG PROVINCE, CHINA
Presenters: Mr Gao Yanwei and Mr Shen Yunliang

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Presenters: Mr Gao Yanwei and Mr Shen Yunliang

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CBR

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LIVELIHOOD INTERVENTIONS TOWARDS INCLUSIVE DEVELOPMENT FOR HEALING, INCLUSION AND DIGNITY OF INDIVIDUALS AFFECTED BY LEPROSY AND DIFFERENTLY ABLED PEOPLE
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**Nerve Funcion and Impairments**

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Genetics and Leprosy
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Presenter: Dr Yong Ning
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**ON THE AGE OF LEPROSY**
**Presenter:** Xiang-Yang Han

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**INFLUENCE OF IFNG +874 T/A AND IL10 -819 C/T SINGLE NUCLEOTIDE POLYMORPHISMS (SNP) ON THE SUSCEPTIBILITY TO LEPROSY: A FAMILY-BASED STUDY AND META-ANALYSIS**
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**Leprosy Control**

**Screen 5, 15:30 - 15:40**
**WORK OF ASOCIACIÓN FONTILLES IN INDIA**
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**Screen 5, 15:40 - 15:50**
**SOCIO-CULTURAL FACTORS AND NLEP INPUTS FOR PREVENTION OF RECURRENT REACTION AMONG LEPROSY PATIENTS**
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**EVALUATION OF THE IMPACT OF THE LEPROSY MISSION’S SUPPORT TO LEPROSY CONTROL IN MARADI REGION, NIGER REPUBLIC**
**Presenter:** Yohanna Abdou

**Detection and Treatment of Reactions**

**Screen 6, 15:30 - 15:40**
**RISK FACTORS FOR LEPROSY REACTIONS IN THREE ENDEMIC COUNTRIES**
**Presenter:** David Scollard

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**ROLE OF THALIDOMIDE IN THE MANAGEMENT OF ERYTHEMA NODOSUM LEPROSUM (ENL) REACTIONS – EXPERIENCES REPORTED FROM REFERRAL HOSPITAL IN DELHI**
**Presenter:** Meenu Sethi

**Screen 6, 15:50 - 16:00**
**IDENTIFICATION OF CLINICAL, EPIDEMIOLOGICAL AND LABORATORY RISK FACTORS FOR LEPROSY REACTIONS DURING AND AFTER MULTIDRUG THERAPY**
**Presenter:** Dr Isabela M. B. Goulart

**Information, Education, Communication (IEC)**

**Screen 8, 15:30 - 15:40**
**AWARENESS AN IMPORTANT IMPLEMENT TO ELIMINATE HIDDEN LEPROSY**
**Presenter:** Shesh Dhote

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**CAPACITY BUILDING ACTIVITIES FOR MEDICAL OFFICERS OF HEALTH CENTRES IN LEPROSY REVEALING IMPORTANCE OF SIMPLE, PRACTICAL IEC INTERVENTIONS IN TWO DISTRICTS OF ASSAM - INDIA**
**Presenter:** Natarajan Manimozhi

**Screen 8, 15:50 - 16:00**
**FACTORS CONTRIBUTING TO LEPROSY KNOWLEDGE AND PERCEPTION IN THE HIGH RISK COMMUNITY, THAILAND; THE DEVELOPMENT OF THE INFORMATION, EDUCATION AND COMMUNICATION (IEC) MODEL**
**Presenter:** Manit Chaninporn

**Immunology**

**Screen 9, 15:30 - 15:40**
**PREDOMINANCE OF CENTRAL MEMORY T CELLS AND PRO-INFLAMMATORY CYTOKINES IN RESPONSE TO MYCOBACTERIUM LEPRAE IN Lepromatous Leprosy Relapsed Patients**
**Presenter:** Danuza Esquenazi

**Screen 9, 15:40 - 15:50**
**USE OF AG85A IN IN VITRO T CELL ASSAYS – AN IMMUNE CORRELATE OF PROTECTION IN LEPROSY**
**Presenter:** Dr Naveenchandra Suryadevara

**Screen 9, 15:50 - 16:00**
**IMMUNOHISTOPATHOLOGICAL DIFFERENCES BETWEEN SKIN WITH AND WITHOUT CHANGES OF SENSITIVITY IN LEPROSY**
**Presenter:** Marco Frade

**Specialised Centres**

**Screen 10, 15:30 - 15:40**
**DIAGNOSIS OF MYCOBACTERIUM LEPRAE IN FONTILLES, SPAIN**
**Presenter:** Lucrecia Acosta

**Screen 10, 15:40 - 15:50**
**CASE DETECTION METHODS OF LEPROSY IN THE PRE INTEGRATION AND POST INTEGRATION PHASES IN A DEFINED GEOGRAPHICAL AREA IN TAMIL NADU, INDIA**
**Presenter:** Dr Mannam Ebenezer

**Screen 10, 15:50 – 16:00**
**THE REFERRAL CENTERS IMPLICATIONS ON EFFICIENCY AND EFFECTIVE DELIVERY OF QUALITY LEPROSY CARE SERVICES IN POST-INTEGRATION AT DISTRICT LEVEL IN ANDHRA PRADESH.**
**Presenter:** Mr Marella Sathiraju
PL – 007

Speaker: Prof Stewart Cole
Title: Mycobacterial and human host genomics in transmission of leprosy

GENOMICS: THE ORIGIN OF LEPROSY AND ITS FUTURE

Stewart T. Cole,
Global Health Institute, EPFL, CH-1015 Lausanne, Switzerland

Next generation DNA sequencing technologies are revolutionizing our understanding of the evolution of Mycobacterium leprae and providing new means to monitor the transmission of leprosy, to follow the emergence of drug resistance and to investigate the relationship of the leprosy bacillus to other pathogenic mycobacteria. Thanks to improvements in sensitivity and throughput, it is now possible to obtain near complete genome sequences of M. leprae from the tiny amounts of DNA present in the skin biopsies of multibacillary patients and even from the skeletal remains of long deceased persons affected by the disease. To illustrate this remarkable progress I will present a genomic study of leprosy during the Middle Ages in Europe, when the disease was endemic and a major source of morbidity, and compare the findings with those from contemporary cases of leprosy. There has been remarkable conservation of the M. leprae genome during the past 1,000 years, and the comparison reveals a European origin for leprosy in the Americas and the presence in medieval Europe of a strain of M. leprae commonly associated with the Middle East today. The practical value of these new methods for working with the leprosy bacillus will be demonstrated by examples of the surveillance of drug-susceptibility and drug resistance in real-time.

PL – 008

Speaker: Prof Annemiek Geluk

IMMUNODIAGNOSTIC TOOLS FOR LEPROSY: EXPOSURE, INFECTION & DISEASE

A. Geluk 1,* on behalf of the IDEAL consortium

1Infectious Diseases, Leiden University Medical Centre, Leiden, Netherlands

Introduction: Early detection of M. leprae infection (before clinical manifestations occur) is vital to reduction of transmission. Current diagnosis can not rely on tests that detect asymptomatic M. leprae infection or predict progression to leprosy. Identification of risk factors (immunological or genetic biomarkers) for disease development and/or onset of leprosy-reactions is imperative for efficient diagnosis. Tests simultaneously detecting biomarkers specific for cellular- and humoral immunity are well-suited for diagnosis of different clinical outcomes of leprosy.

Methods: In several cohort studies we have conducted follow-up studies analyzing immune- and genetic profiles in leprosy endemic areas in Nepal, Bangladesh, Brazil and Ethiopia, including leprosy patients, household contacts and healthy controls from areas with high or low leprosy prevalence.

Results: These studies identify several M. leprae antigens as biomarker tools to measure M. leprae exposure as well as cytokines and genetic profiles that can potentially distinguish pathogenic immune responses from those induced during asymptomatic exposure to M. leprae. Field-friendly multiplex formats for diagnostic tests based on these biomarkers are being developed.

Conclusion: In view of the complicated nature of M. leprae infections, it is essential to invest in longitudinal studies allowing intra-individual comparison of immune- and genetic biomarkers in various leprosy endemic areas. Diagnostic tests based on such biomarkers can contribute significantly to early detection of leprosy (reactions) thus helping reduce nerve damage.

PL – 009

Speaker: Prof Jan Henrik Richardus

Title: The research challenge to reduce transmission

CONTACT CENTRED STRATEGIES TO REDUCE TRANSMISSION OF M. LEPRAE

Prof. Jan Hendrik Richardus, MD, PhD
Department of Public Health, Erasmus MC, University Medical Center Rotterdam, Rotterdam, the Netherlands

The basis of leprosy control has been case detection and treatment. MDT led to a dramatic reduction in the prevalence of registered cases of leprosy to less than 1 in 10,000 population by the end of the year 2000, after which the focus of control has shifted from registered prevalence to new case detection and to reducing the burden of disease. The global number of new cases per year has been static for the last 5 years at around 250,000. Population-based approaches to case detection are no longer cost-effective. A new strategy is now indicated that is appropriate to the current epidemiological situation. The main risk of exposure to leprosy is in close contacts of new, untreated cases and the risk of exposure to leprosy in the general community is very low. An increasing proportion of new cases will be from household contacts. The aim of the new control strategy is to reduce transmission to exposed contacts of new cases. BCG vaccine is effective in preventing transmission of M. leprae and the development of new vaccines is in progress. Also, single-dose rifampicin chemoprophylaxis gives over 50% reduction in transmission in contacts. The research challenge is to improve the effectiveness of reduction of transmission in contacts through development of tests of infection and exposure to M. leprae to better target interventions; and to improve the interventions based on immune-prophylaxis and chemoprophylaxis to reduce transmission of leprosy in contacts.
L-010
Presentation Time: Thursday 19/09/2013 at 11:00 – 12:30
Symposium Session: Leprosy Control
Presenter: Dr P Krishnamurthy

LEPROSY CONTROL: PROGRAMME ACCELERATION, THE NEED AND THE WHEREWITHAL

Leprosy control is claimed be a good example of a public health programme implemented with a robust technology, remarkable collaboration, strong political will and forceful strategy. The result is reduction in leprosy prevalence. But it has not led to a stronger impact on leprosy burden in terms of new cases detected. For the last five years globally and in majority of endemic countries, new case detection has not shown a perceptible decline. It could be due to lack of sustained effort. Against the background of the agreed mandate to reduce G2D among new cases by 2015, the issue becomes all the more important. At this stage, strategic reorientation is possible if there are new intervention tools. In the absence of effective primary prevention tools and with limited strategic options (early diagnosis and prompt treatment with MDT) one may have to direct one’s efforts on focused accelerated action on early diagnosis which includes improving diagnostic validity through new tools and techniques and efficiency through sustainability of expertise, and reducing the gap between onset and detection. Intense case finding would reduce G2D but would certainly increase the number of new cases, at least in the initial years. It could surely be directed at “at risk individuals” (contacts), or “at risk population groups” (under served populations). Locally adapted special actions could be planned in each of these locations with the collaboration and partnership with other Government departments, NGOs, civil society, affected persons, to mobilize expertise, resources and render the process cost effective. At the same time research to identify new interventions and new strategies should be fast tracked.

L-011
Presentation Time: Thursday 19/09/2013 at 14:00 – 15:30
Symposium Session: Community Based Rehabilitation (CBR)
Presenter: Dr Sunil Deepak

COMMUNITY BASED REHABILITATION (CBR)

Dr Sunil Deepak

Introduction: CBR approach has been experimented in the field for more than thirty years. Documents and guidelines from the World Health Organisation (WHO) and International Federation of Anti-leprosy Associations (ILEP) have been discussing the feasibility of adopting CBR approach for rehabilitation of persons with disabilities due to leprosy for a long time. Thus it is important to understand the progress made, the challenges faced and the key related issues in implementing CBR approach for inclusion of persons affected leprosy.

Key Issues: Development and implementation of CBR are linked to Alma Ata declaration. CBR Matrix defines the areas of interventions under CBR. Persons with disabilities are expected to play an active role in different aspects of their own rehabilitation.

On the other hand, rehabilitation of persons with disabilities due to leprosy have developed mainly in the context of health care institutions. Only recently leprosy programmes have engaged with issues of participation of leprosy affected persons in their own care and the roles of organisations of leprosy affected persons.

Thus, the encounter between CBR programmes and leprosy-rehabilitation programmes has two main areas that need research and understanding:

1. Issues related to adoption of CBR approach in leprosy-rehabilitation programme;
2. Issues related to inclusion of persons affected with leprosy in CBR programmes.

CBR approach in leprosy-rehabilitation programmes

Majority of research in this area is about self-care groups for prevention of disabilities, self-help groups for peer support, loans, vocational training and income generation. In terms of CBR matrix, there are many other areas such as role of leprosy DPOs that have not been explored or inadequately explored so far.

Inclusion of persons affected with leprosy in CBR

In this area published research is extremely limited. There are different areas such as advantages and disadvantages of participation of leprosy affected persons in DPOs and self-help groups composed of persons with different disabilities, about which research is needed. It is not clear what percentage of persons with leprosy related disabilities are involved in cross-disabilities CBR programmes.

Conclusions: The interface between leprosy and CBR has different key areas on both sides of the divide that merit greater understanding and research. Published research on these issues has been limited to certain aspects of leprosy-rehabilitation programmes that have adopted CBR approach.
DETECTION AND TREATMENT OF REACTIONS IN LEPROSY

V. V. Pai 1,2

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Introduction: Clinical manifestations of leprosy depend on host’s response to live M. leprae or its antigens. Apparently unintentional response to chemotherapy is marked by clinically disturbing episodes encountered in about 20-30% of patients and these phenomena are called reactions contributing to the development of new disabilities in leprosy.

Methods: Generally reactions are classified as reversal reaction / type I and ENL / type II. Type I reaction (characterized by inflammation of lesions, appearance of new inflamed lesions, with / without neuritis) is commonly encountered in BT leprosy. Type II reaction (debilitating, multisystem disorder characterized by fever, malaise and crops of painful erythematous cutaneous nodules) is, besides nerve damage, arthritis, anemia, bone pain, orchitis, hepatitis and iritis seen in (BL and LL). Reactions can occur at any time either during the course of treatment or during the surveillance or at times before the treatment. The Physicians and field staff should remain alert at all times for suspecting and detecting signs of reactions on the skin as well as in the nerves (tenderness) and possibly the patients at risk may be cautioned and educated about the signs of reaction. Clinical features of reactions for detection can be divided as follows:

A) Cutaneous manifestations - Type II reactions in LL and BL, ENL, Erythema multiforme, Erythema necroticans, subcutaneous nodules and Lepromatous exacerbation
B) Type I reactions in Borderline and Tuberculoid leprosy
C) Other manifestations- Lymphadenitis, Oedema of hands and feet and Ocular lesions
D) Sequelae of reactions – Paralytic deformities, non paralytic deformities, extensive scarring
E) Identification of risk factors – Various factors like pregnancy, adolescence and puberty, inter current infections, psychological stress and vaccination can influence the immune system pre-disposing the patient to risk of reaction.

Peripheral neuropathy - Peripheral nerve damage is one of the worst consequences of reactional states in leprosy.

Silent Neuropathy – can be identified as sensory or motor impairment without obvious skin signs of reversal reaction or ENL without evident nerve tenderness and neuropathic pain.

Treatment - The use of steroid therapy in the management of reactions and neuritis in leprosy is now gaining importance in view of the possible nerve function impairment. Standard steroid schedules using Prednisolone are useful in reducing the recurrences of reactions and to improve the nerve function. Other anti inflammatory (NSAIDS) and immunosuppressive drugs include Clofazimine, Thalidomide and newer drugs like Pentoxiphylline, Azathioprine, Cyclosporine, Leucotrienene inhibitors etc.

Results: Reaction is an unpredictable event having a predilection for skin and nerves and associated with tissue damage when accompanied by systemic involvement.

Conclusion: Treatment with standard schedule of steroids viz Prednisolone is proved to be very effective and should be made available at field levels and clinic for all patients with reactions. It is therefore necessary to detect reactions and institute treatment early to prevent nerve damage and its consequences like deformity which is the root cause of stigma.

POST-MDT LEPROSY NEUROPATHY: DIFFERENTIALLY DIAGNOSING REACTIONAL NEUROPATHIES AND RELAPSES.

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Introduction: In leprosy, aggravation of newly appearing nerve damage emerging after MDT poses difficulty to differential diagnosis, between reactional neuritis and relapse. In addition, a neuropathy other than leprosy can not be ruled out. The confirmation of a relapse requires retreatment, however, the criteria for relapse diagnosis with this presentation have not been clearly established in the literature yet. The objective of this study was to ascertain the role of the nerve biopsy in the differential diagnosis of the post-MDT leprosy neuropathy based on histological alterations across the selected groups.

Methods: We examined 50 post-MDT nerve biopsy samples (33 reactional neuritis and 27 relapse samples). The nerve sampling was guided by a careful clinical evaluation and the finding of neuroelectrophysiological alterations, such as disturbances of conduction velocity and / or action potential amplitude. Relapse diagnosis was suspected in face of persistence of the symptoms more than 5 years after treatment, refractoriness to anti-reactional treatment, aggravation of the impairment of neurological function. Using these criteria, reactional neuritis was assigned to the nerve sample whenever AFB was absent and relapse, when AFB was found in the nerve. The presence x absence of each histopathological alteration was attributed to each nerve sample examined. Statistical tests K2 of Pearson and Fisher (corrected) were employed in the analysis of the frequencies across the groups.

Results: The following histological alterations were more frequently found in the relapse than in the reactional neuritis group : perineural infiltration (p < 0.005 and), foamy macrophages (p < 0.0000000000), epineurial, perineural and endoneurial fibrosis (p < 0.001), perineural hyperplasia p < 0.04), reduction in the number of myelinated nerve fibers in both paraffin (p < 0.004) and epon- embedded sections (p < 0.03). No significant differences were found in respect of epineurial granuloma, remyelination, axonal a regeneration of nerve fibers across the groups.

Conclusion: The differences in the frequency of alteration across the samples could reflect distinct pathobiological courses of reactional neuritis versus relapse, however a more in depth knowledge of biology of M-leprae infection is required to interpret these results. We could conclude that nerve biopsy is useful as a tool for the differential diagnosis of post-MDT peripheral neuropathy given that detection of acid-fast bacilli in the samples may favor the decision regarding relapse; however this decision should be strongly supported by clinical and neuroelectrophysiological data.

GLOBAL GENE EXPRESSION STUDIES OF PBMC DURING REVERSAL REACTIONS SHOW INCREASED EXPRESSION OF MICROBIAL RECOGNITION RECEPTORS

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Introduction: Leprosy remains a significant health problem, particularly in endemic countries such as Brazil. The pathologic immune reactions, including reversal reaction (RR), are an additional burden to the 30% of leprosy patients who develop them. RR is thought to be an augmentation of the Th1 response which manifests in skin and nerves and is characterized by recurrent episodes and additional disability. Long-term corticosteroid treatment is needed to control RR. The study objective was to characterize the global gene expression profile in the peripheral blood during RR with the goal of identifying novel therapeutic targets. The hypothesis was that there would be upregulation of genes related to an augmented Th1 response.

Methods: Individuals being treated for leprosy were recruited from leprosy referral centers in Rio Grande do Norte, Brazil. Cases had diagnoses of leprosy and reversal reaction (RR). Controls were people with leprosy without RR selected by incidence density matching for sex, age, leprosy clinical form, and stage of leprosy therapy. Peripheral blood mononuclear cells (PBMC) were extracted from blood of cases and controls, before the initiation of corticosteroids. RNA was extracted using a Trizol-based protocol and column-purified. For the first phase of the study, Illumina HT12v4 profiles were determined for 11 RR and 11 matched controls. Expression values were normalized to the baseline and RR and control groups were compared using ANOVA for each gene. For the second phase of the study, a custom TDLA array (Life Technologies) including 48 genes per sample was designed based on the microarray findings. The original panel and an additional 11 RR cases (n=22 RR) and 7 matched controls (n=18 controls) were run in duplicate. Expression levels were normalized and case and control groups compared. P-values less than 0.05 were considered to be statistically significant.

Results: In the Illumina array, there were 180 genes with a fold-change (FC) difference of >= 1.5 between leprosy patients with and without RR and p-value < 0.05. Within the set
significant genes, the KEGG pathway most strongly associated with differences between RR cases and controls was the complement cascade (p=0.0028). Expression of C1q (FC 1.57, p=0.065), C2 (FC 2.17, p=0.018), C5L2 (FC 1.60, p=0.022), and C3 esterase inhibitor (FC 2.01, p=0.015) were increased in the RR group. Expression of C1q, C2, and C1 esterase inhibitor remained significantly elevated in the RR group in the TLDA panel. Immunoglobulin and microbial recognition receptors most commonly found on monocytes were also increased in the RR group. These included FcγRII (FC 2.58, p=0.005), formyl peptide receptors (FPFR FC 1.70, p=0.017 and FPFR 2 FC 2.0, p=0.014), and MARCO (FC 1.84, p=0.036). These genes remained significantly increased in the validation panel. Declin-1, which approached statistical significance in the array (FC 1.52, p=0.11) was significantly different between leprosy patients with and without RR in the TLDA panel (p=0.0043).

Conclusion: There were differences in gene expression levels in PBMC of people with borderline-line type leprosy with and without RR. Increased expression in the classical complement pathway and of FcγRII suggests roles for antigen-antibody complexes and their recognition by complement and blood monocyte receptors during RR. Further study of upregulated microbial recognition receptors may help identify the antigen types involved in RR. Studies to correlate these findings with expression levels in skin lesions during RR are ongoing.

O-202

Presentation Time: Thursday 19/09/2013 at 11:00 – 12:30
Symposium Session: Detection and Treatment of Reactions in Leprosy
Presenter: Saba Lambert

RCT ASSESSING CICLOSPORIN IN TYPE 1 REACTION TREATMENT, IN ETHIOPIA

S. M. Lambert 1, 2, D. Lockwood 2, F. Nicholls 3, S. D. Nigusse 4, D. Tseyeg 5, J. Hussen 6, M. H. Idriss 7, L. K. Yamuah 6 and CiReCT

1ALERT Centre, Addis Ababa, Ethiopia, 2Clinical Research Department - Faculty of infectious and Tropical Diseases, London School Of Hygiene and Tropical Medicine, London, 3School of Health Sciences, University of Southampton, Southampton, United Kingdom, 4Dermatology, 4HIV Pathology, 5Data Management AHRI, ALERT Centre, Addis Ababa, Ethiopia

Introduction: T1R are treated with corticosteroids; the efficacy is variable, around 60% of patients improve neurologically. There is an urgent need to assess alternative treatment in Prednisolone-resistant or Prednisolone dependent cases of T1R.

Ciclosporin is a potent immunosuppressant that has been successfully used as a treatment in immunological conditions. A pilot study in severe T1R showed that Ciclosporin produced improvement of skin lesions and nerve function. We conducted an RCT in order to systematically assess Ciclosporin for safety, tolerability and efficacy in T1R.

Methods: A double blind controlled clinical trial randomizing patients with new T1R to treatment either with Prednisolone alone or Prednisolone and Ciclosporin combination. Treatment period was 20 weeks and final follow up at 32 weeks. Clinical response through T1R symptoms and signs, nerve function and additional treatments were measured as well as recording adverse events, haematological, renal and hepatic functions and quality of life. Outcome measures were: change in Reaction Score (skin, motor function and sensory function); time to recurrence of T1R after initial control; numbers and severity of T1R recurrences; amount of extra prednisolone needed to control symptoms and frequency and type of adverse events.

Results: 85 patients have been recruited and will complete follow up period in April 2013. Data on the change in nerve function impairment and skin lesions, frequency and severity of T1R recurrences and adverse events in the two groups will be presented. To date four SAE have been reported: a patient with severe eye infection in the prednisolone group, a patient with intra-cranial hypertension in the combination group. The two other patients with SAE: one osteomyelitis and one TB re-activation are yet to be unblinded.

Conclusion: Ciclosporin has not been associated significant adverse events and it is a promising safe second line steroid sparing drug in the management of T1R.

Funders: Homes and Hospitals of St Giles

O-204

Presentation Time: Thursday 19/09/2013 at 11:00 – 12:30
Symposium Session: Detection and Treatment of Reactions in Leprosy
Presenter: Dr Annamma John and Diana Lockwood

RCT OF AZATHIOPRINE VERSUS PREDNISOLONE IN THE TREATMENT OF TYPE 1 REACTION AND NEURITIS

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Introduction: Improvement rates for patients with T1R and leprosy neuropsis are about 50% (range 30-70%). Steroids are used but have adverse effects so improved and alternative treatments are needed. We studied the addition of azathioprine (50mg /day fixed dose) to prednisolone treatment for leprosy reactions.

Methods: Double blind RCT comparing placebo, or 24, 36 and 48 weeks of azathioprine added to a 24-week course of prednisolone. Patients with T1R and new neuropsis were recruited at 4 Leprosy Mission hospitals in India. Outcome measures were at 48 weeks and comprised skin improvement, motor and sensory function using a validated reaction severity score (CSS).

Results: Among 345 patients recruited, 59 were withdrawn with adverse effects, 82 defaulted and 4 died. 66 patients required extra prednisolone. Analysis done on the remaining 134 patients. There was a significant benefit for all treatments for the skin component of the CSS and adding azathioprine did increase benefit. Treatment with azathioprine produced an improvement in motor scores, but this was not clinically significant. No improvement was seen in sensory scores, 72 patients had recurrences of T1R and neuropsis and required a further course of prednisolone. Azathioprine did not reduce recurrences. The data on the adverse effects are being reported separately.

Conclusion: Azathioprine does not improve the skin or sensory outcomes of treatment for T1R. There was also a significant rate of adverse events. New drugs that can switch off leprosy inflammation need to be identified.
LIFE COURSE PERSPECTIVES ON EXPERIENCES OF AND RESPONSES TO LEPROSY-RELATED STIGMA IN WESTERN NIGERIA

B. E. Ebenso 1 3

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Introduction: Prior to my research, most of what was known about leprosy-related stigma emerged from surveys conducted with health workers, students and the general public. Much of that research employed quantitative questionnaires and/or stigma scales to assess the existence and/or severity of stigma in diverse global contexts. Whilst such studies sought evidence-based solutions for ameliorating the impacts of stigma, they ignored the experiences of persons affected by leprosy. Moreover, little attention was given to understanding the cultural contexts of stigmatization and the political-economic processes which shaped stigmatization. My PhD research therefore aimed to capture the complexity of stigma by investigating the everyday experiences of people affected by leprosy, to understand how socio-cultural, political and economic processes shaped stigmatization of leprosy in Yorubaland, western Nigeria.

Methods: Unraveling the complexity of stigma demanded the use of four qualitative data-collection methods. These included: i) life history interviews of 21 people affected by leprosy, semi-structured interviews of 26 non-affected community members and a sociolinguistic study of the leprosy phenomenon. The combination of multiple methods, empirical materials and perspectives in a single study added rigour, breadth and depth to the investigation and understanding of the phenomenon in question.

Results: Analysis of the social history of leprosy revealed that the colonization of Nigeria (between 1861 and 1960), drew the Yoruba people into Western ideologies and capitalist modes of production, and significantly altered entrenched cultural beliefs to produce the current moral definitions of leprosy and stigmatizing attitudes of the Yoruba. Analysis of the life-history interviews of affected persons, the interviews with community members and the sociolinguistic study of leprosy all indicated that the forms of expression and severity of stigma were not static but changed over time. The findings further showed that access to effective medical treatment, a supportive family network and a source of livelihood enabled people affected by leprosy to counteract stigmatizing attitudes in the community.

Conclusion: This study provides rich contextual understandings of Yorubá ideas of leprosy and demonstrates that leprosy and its associated stigma are not reducible to biological problems located in an individual's body. The findings also reveal how culture and macrosocial factors such as colonization, economic/political upheavals and social structures shape people's diverse experiences and responses to leprosy-related stigma. The study also provides compelling theoretical insights for improving policy and practice.

UNDERSTANDING ADVERSE EXPERIENCES IN A STIGMA REDUCTION PROJECT IN CIREBON, INDONESIA; DIAGNOSIS AND CONCEALMENT


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Introduction: The importance of leprosy-related stigma is increasingly acknowledged, but the effectiveness of approaches that aim to address it has not yet been studied well. Hence, there is a need for more research on the impact of stigma-reduction strategies. The Stigma Assessment and Reduction (SARI) project is such a project. It aims to reduce stigma through counselling, contact and socio-economic interventions and assesses the effectiveness of these in Cirebon, Indonesia. Stigmatization takes shape in specific contexts of culture and power. Hence, besides changing attitudes and beliefs, stigma reduction is about changing power relations. This, inevitably brings along adverse experiences in people affected by leprosy. Adverse experiences related to stigma are common and should be expected, but should be addressed with the utmost care. We wanted to understand these adverse experiences better in order to prevent the preventable and to build capacity to deal with the unpreventable. In this paper we specifically explore the issues around not knowing the diagnosis and concealment.

Methods: The SARI project, initiated in 2010, is a large participatory, mixed-methods intervention study. Throughout the project, notes were made on adverse experiences of participants. In November and December 2012 interviews, group interviews and dialogues with the SARI staff were conducted to increase our understanding of these experiences. These records resulted in detailed descriptions of cases and revealed the two key themes of this paper.

Results: During the first encounter between SARI staff and potential participants, it was found that a small portion (about 5% (n=650)) were not aware of their leprosy history or status. This raised the question: should the project team inform them? Based on personal judgement, SARI’s research assistants either used the term the participant used, such as ‘skin disease’, or shared the diagnosis. Participants that were informed about the diagnosis responded or felt: i) indifferent in particular when they were already cured, ii) happy or relieved to finally know the truth, iii) concerned especially when they were still on treatment, iv) not willing to accept it, or, sporadically (1 case), iv) upset and angry. The latter was considered an adverse experience. A key element of SARI’s work is visiting people affected by leprosy at home. Being visited by a stranger can make family members, friends and neighbours curious. This is problematic if participants wish to conceal their leprosy history or status. An estimated 5-10% did not tell anybody and a slightly bigger proportion (10-20%) only informed the close family. In a few cases family members found out about the leprosy history or status of a participant, directly or indirectly, through SARI’s work. In most cases, this had a positive impact, but in one case a family member took distance. This was also classified as an adverse experience.

Conclusion: The degree of awareness concerning the leprosy history or status of a participant or the people around him or her is important to consider. We suggest that a stigma-reduction project: i) should have a thorough understanding of the context, ii) decides on forehand on specific principles and practices regarding the diagnosis and concealment and ensures capacity, iii) creates space and an encouraging atmosphere to discuss adverse experiences that nevertheless occur. Projects should aim to prevent adverse experiences but should anticipate that it will be impossible to prevent all.
A CASE-CONTROL STUDY COMPARING THE QUALITY OF LIFE OF PATIENTS UNDERGOING LEPROSY TREATMENT TO PEOPLE CURED OF LEPROSY AND CONTROLS IN VIET NAM

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Introduction: Leprosy is characterised by neurological and cutaneous manifestations which exert a substantial impact on the physical and psychological wellbeing of people affected. Both the WHO Quality of Life BREF (WHOQOL BREF) and the Dermatology Life Quality Index (DLQI) have been used in studying quality of life (QOL) in leprosy. The WHOQOL-BREF assesses QOL using 26 questions categorised into four subdomains. The DLQI asks 10 questions on the impact of dermatological disease on QOL.

Our primary aim was to assess and evaluate the QOL of people being treated for leprosy, people cured of leprosy, and controls, in Vietnam. The secondary aim was to assess the background variables and how they impacted the QOL scales. There are currently no published studies that have reported on QOL using both the WHOQOL BREF and the DLQI. Furthermore, no studies have investigated these groups of participants in Vietnam.

Methods: 102 (34 matched sets) adult participants were enrolled using a consecutive sampling technique. Patients receiving or <3 months since leprosy treatment (Group A), were enrolled from Ho Chi Minh City and the surrounding province of Dong Nai. People cured of leprosy (Group B) and controls (Group C) were matched to Group A patients by gender, age (within 4 years) and area. Written, informed consent was obtained and then all participants were interviewed owing to the low levels of literacy present. The interviewer completed a proforma that collated background characteristics, self-rated disability and stigma, the validated Vietnamese (VN) DLQI, and the currently unvalidated VN WHOQOL BREF.

Owing to non-normality, the primary aim was analysed with Kruskal-Wallis (with Wilcoxon as a post hoc test) and the chi² test determined differences in background variables. Spearman correlation determined the association between background variables with the QOL scales.

Results: The sample’s median age was 41; each group had 28 men and 6 women. For the DLQI, Groups A & B had significantly higher (lower QOL scores) from Group C for multiple subdomain scores, including symptoms & feelings (A vs C, p=0.0004; B vs C, p=0.001), work & school (A vs C, p=0.0003; B vs C, p=0.006), and the total DLQI score (A vs C, p=0.0009; B vs C, p=0.0025). For the WHOQOL BREF, the total score was not statistically different (p=0.089); however, the physical health subdomain was significantly different (A 63%, B 69%, C 72%, p=0.043). Significant background variables included the presence of physical disability (37.5% A, 30% B, 9% C, p=0.02) and education level (p<0.0001), with 24% of A, 21% of B and 68% of Group C having attended high-school. Self-rated stigma was not different between the groups (p=0.36).

The total DLQI score had a significant positive correlation with employment status (p=0.04), with retired scoring highest. Physical disability was associated with higher total DLQI scores (p=0.001). There was a positive correlation between education level and total WHOQOL BREF score (p<0.005) and a negative association with physical disability (p=0.01).

Conclusion: The DLQI results shed greater light on the QOL disparity with leprosy. Clinically, Groups A & B’s mean total DLQI scores translate that their skin has ‘small effect’ on their life. The WHOQOL BREF results were unexpected, we postulated there would be large differences between groups and whilst a bigger sample size would give more power, many of the groups’ subdomain scores had similar medians. Another surprise was the stigma assessment being very non-significant. Lastly, in Vietnam, like in other countries leprosy still affects those with the least education.

O-210

LIFE SATISFACTION AND STIGMA PROFILE OF LEPROSY PATIENTS WHO HAVE BEEN RELEASED FROM TREATMENT

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Introduction: Despite advancement in treatment of leprosy, stigma associated with leprosy continues to impact the life of the affected person even after the disease has been cured. At clinical psychology unit of S.I.H-R&LC, Karigiri it has been observed that fairly significant number of RFT patients report with multiple somatic, non specific complaints which when explored reveal underlying psychological stressors. Occasionally they need psychiatric consultation for depression and delusional disorder. These observations reinforce the need for counseling regarding their RFT status and to deal with misconceptions about disease status and to deal with problems due to stigma after they are released from treatment.

Methods: It is a descriptive study. Random sampling technique was used for the selection of patients. Chi-square test was used to study the association between socio-demographic variables and life satisfaction index and stigma level, analyzed using SPSS, IBM 19 version. Patients released from treatment from the past 5 years at Karigiri hospital were taken for the study.55 patients were assessed with Life Satisfaction Scale and EMIC (Explanatory model interview catalogue) scale for perceived stigma, both standardized tools.In both tools higher the scores, higher the level of life satisfaction and stigma respectively.

Results: Life satisfaction scale scores reveals association between life satisfaction(0.5) and age of onset of the disease(0.6)% of the patients below onset at 36 years of age (mean value for age of onset is 36 years) are having high level of life satisfaction and 71.4% of the patients with onset at above 36 years of age are having low level of satisfaction. P value is less than 0.05 level. EMIC scale scores reveal association between deformity and stigma.43.8% of the patients having deformity have medium stigma, 31.3% have low stigma, 25% have high level stigma.43.3% of the patients without deformity have high and low stigma.Chi value is 6.029, P value is less than 0.05.

EMIC scores reveal association between stress events and stigma.Among the 55 patients 26 have experience of stress and 29 do not have stress experience(50%) (n=13) of patients with stress have high level stigma.26.7% (n=7) of patients with stress have medium stigma and patients (48.3%, n=14) who have no stress event have low stigma. The chi value is 7.143, P value is less than 0.05 level

Conclusion: The results show that there is a significant association between onset (age) of disease and life satisfaction. It could be that earlier the onset better the coping as young patients may adapt as they are still earning with family and other resources to support.During late onset, the patients may have stopped working, dependent or less family support.Ageing may be an additional burden.The significant association between stress events and stigma again shows that further exploration of stress experience may help find out if stigma contributes to stress events and provide appropriate counseling support.The significant association between deformity and stigma shows that deformity plays a crucial role in contributing to the stigma. Even those without deformity have both low and high stigma further reiterating the fact that patients with or without deformity need psychological support to cope with stigma.

The RFT patients may benefit from on going psychological assessment and provide support periodically if there are problems to help cope with stigma and improve their quality of life.
ORAL PRESENTATIONS

O-211

Presentation Time: Thursday 19/09/2013 at 11:00 – 12:30
Symposium Session: Genetics in Leprosy
Presenter: Dr Deanna Hagge

GENETIC SUSCEPTIBILITY AND SKIN CHEMOKINE EXPRESSION ACROSS THE SPECTRUM OF LEPROSY

W. R. Berrington 1, C. B. Kunwar 1, S. Khadge 1, D. A. Hagge 1, T. R. Haw 1

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Introduction: Although the spectrum of clinical leprosy is characterized by polarized dermal T-cell immune responses, the role of host genetics and cellular mechanisms underlying these distinct states are largely unknown. We and others previously found that Toll-like (TLR) and Nod-like Receptor (NLR) genetic variants are associated with susceptibility to leprosy and its clinical subtypes. We hypothesized that TLR and NLR variants regulate chemokine secretion which leads to differential recruitment of immune cells to leprosy lesions and contributes to T-cell polarization.

Methods: We obtained dermal biopsies from 73 leprosy patients at Anandaban Leprosy Hospital in Nepal. We used a Fluidigm BiomiQ HD RT-PCR microfluidic platform to compare transcriptional levels of 23 cytokines and chemokines (normalized to GAPDH control) in patients with Ridley-Jopling classification of either Th1 dominant (borderline tuberculoid and tuberculoid, BT/TT, N=39) or Th2 dominant (borderline-lepromatous and lepromatous, BL/LL, N=33). We also isolated genomic DNA for genetic studies.

Results: Among 23 cytokines and chemokines, three (CCL18, CCL2, CCL1, and IL10) had higher levels when comparing BL/LL to BT/TT subjects (unadjusted P value <0.05). IFNγ demonstrated a trend towards higher expression in BT/TT subjects (P=0.14). After adjusting for multiple comparisons, CCL2, CCL18, and IL10 had statistically significant differences in expression (adjusted P values=0.002, <0.001, 0.022, respectively). The differences in median normalized expression values for BL/LL versus BT/TT were 148.7 vs 30.1, 371.6 vs 91.6, and 60.7 vs 13.8 for CCL2, CCL18, and IL10, respectively.

Conclusion: Several chemokines were differentially expressed in BL/LL and BT/TT skin biopsies. These chemokines mediate several functions that could regulate the dermal immune response including monocyte recruitment (CCL1 & CCL2), T cell recruitment (CCL18), and T cell polarization (CCL17). Studies are underway to examine whether TLR and NLR genetic variants are associated with chemokine expression in leprosy lesions.

O-212

Presentation Time: Thursday 19/09/2013 at 11:00 – 12:30
Symposium Session: Genetics in Leprosy
Presenter: Mr. Venkata Sanjeev Kumar Neela

VITAMIN D RECEPTOR GENE POLYMORPHISMS AND ITS ROLE IN LEPROSY SPECTRUM

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Introduction: Vitamin D Receptor (VDR) belongs to the family of trans-acting transcriptional regulatory factors. Recent studies revealed the immunomodulatory role of VDR in its classical role and it exerts its function through VDR. Polymorphisms in VDR gene have been associated with several infectious, genetic and metabolic diseases. There are fewer reports suggesting the association of SNPs in VDR with leprosy on the other hand very limited information explaining their effect on function. In-vitro studies have shown the beneficial role of vitamin D on immune function but there are no reports on correlation of VDR expression with cytokines in Leprosy. So investigating the role of polymorphisms and VDR together across the leprosy spectrum with simultaneous monitoring of TH1 & TH2 response would be insightful to understand its role. The study aims to ascertain the association of three SNPs, Taq I, C-T-G and C-F-T, in VDR gene with Leprosy disease and correlate VDR gene expression with TH1 (IFN gamma), TH2 (IL10) and IL17 cytokines in clinical forms of leprosy.

Methods: The study group includes 244 participants constituting leprosy patients (n=122) out of which Multibacillary (n=76), Paucibacillary (n=46) and healthy controls (n=122). Genotyping of Taq I, Fok I & Apa I polymorphisms were done using PCR-RFLP technique. To identify the role of VDR 15 participants with 5 tuberculoid (T-Lep), 4 lepromatous (L-Lep) and 6 healthy controls (HC) were recruited in the study. PBMCs were cultured and stimulated with MLOA, VDR gene expression was analysed using RT PCR & cytokine assays in culture supernatants by sandwich ELISA. Analysis of genotype data was performed using Open Epi software (version 2.2.1), haploview version 4.2 while F and Pearson correlation test using Graph Pad Prism software, version 5.0.

Results: The frequency of CC & GG genotypes at Taq I & Apa I positions were significantly high (p<0.05) in Multibacillary (MB) and Paucibacillary (PB) patients compared to controls indicating a positive association, while the frequency of GG genotype at Apa I position in MB patients and TT, FF & GG genotypes at Taq I, Fok I & Apa I positions in PB patients were significantly low compared to controls indicating a negative association. Out of 7 haplotype combinations, the haplotype C-F-T and C-T-G (at Taq I, Fok I & Apa I positions) were positively and F-G negatively associated with leprosy disease (p<0.05). The VDR gene expression was significantly high in T-Lep patients (p<0.05) when compared to L-Lep patients and healthy controls. VDR expression was inversely correlated with IL10 levels in L-Lep patients (r= -0.99, p=0.004) and no correlation was observed with IFN gamma and IL17 cytokine levels.

Conclusion: The genotypes CC & GG at Taq I & Apa I positions were negatively associated with Multibacillary (MB) and Paucibacillary (PB) groups and may offer resistance to leprosy while the genotypes TT, FF & GG at Taq I, Fok I & Apa I positions in PB group and GG genotype at Apa I position in MB group were positively associated and perhaps may be a risk factor for Leprosy. The haplotype combinations C-F-T and C-T-G (at Taq I, Fok I & Apa I positions) offer resistance while T-F-G is a risk factor for Leprosy disease. VDR expression was high in T-Lep patients with subsequent cell mediated response. The expression of VDR has direct correlate with IL10 in L-Lep patients and further experiments with higher number of patients and increases cytokine expressions may give better idea of VDR role in leprosy disease and pathogenesis.

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Presentation Time: Thursday 19/09/2013 at 11:00 – 12:30
Symposium Session: Genetics in Leprosy
Presenter: Prof. Furen Zhang

GENETIC RESEARCH OF LEPROSY

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Introduction: The narrow host range of Mycobacterium leprae and the fact that it is refractory to growth in culture has limited research on and the biologic understanding of leprosy. Host genetic factors are thought to influence susceptibility to infection as well as disease progression, with estimated heritability of up to 57%.

Methods: We conducted out a series of genome-wide association studies (GWAS) by genotyping 706 leprosy patients, 1,225 controls and 4,367 population controls using the Human610 Quad BeadChip (Illumina). Those single-nucleotide polymorphisms (SNPs) that most strongly associated with the disease in genome-wide association stage were further validated in replication sets totaling 3,301 leprosy patients and 5,299 controls using the Sequenom MassARRAY and Taqman platform. Based on our GWAS datasets, two candidate gene analyses were also performed in the same cohort using the Sequenom MassARRAY platform.

Results: Totally we identified 18 SNPs within 8 susceptibility genes that showed significant associations with leprosy in our GWAS; COCC112, LAC11, NOD2, TNFSF15, IL12RBL2, RIPK2, IL23R and RAB32. In two candidate gene analyses, BCL10, IL12B and IL12RB1/IL12R1 were also identified to exceed the genome wide association threshold (p values <5.00×10^-8). Most of these genes feature in the NOD2-mediated regulatory node of innate immunity. And also, seven susceptibility genes (CCDC122, LAC11, NOD2, TNFSF15, IL12RBL2, IL12B and IL12RB1) have been implicated in inflammatory bowel disease (IBD).

Conclusion: Variants of genes in the NOD2-mediated signaling pathway (which regulates the innate immune response by activating NF-κB pathway as a part of the host defense response to infection) are associated with susceptibility to infection with M. leprae. The identification of IL23R revealed a potential involvement of autophagocytosis in leprosy pathogenesis. And, our findings also demonstrate the common genetic susceptibility between infectious and inflammatory diseases.
RESULTS: There were statistically convincing differences between leprosy per se patients versus controls which showed significantly in RIPK2 gene located in chromosome B. Two loci in RIPK2 gene showed genome-wide significance with susceptibility of leprosy. Top 2 SNPs were rs44xxx (P = 2.16x10^{-08}; odds ratios 1.93 CI: 1.42-2.63) and rs44xx (P = 2.27x10^{-09}; odds ratios 2.20 95% CI: 1.51-3.2).

Conclusion: This analysis indicated the strong association of RIPK2 loci with susceptibility to leprosy in Thai and confirmed the usefulness of genome analyses in Thai using existing public Hapmap genotype data.

HUMAN GENETICS OF LEPROSY POLARIZATION

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Introduction: The observation of considerable interindividual clinical variability among individuals exposed to leprosy supports the view of a major contribution of host genetic factors. Linkage and association studies have identified number of genes implicated in the development of leprosy, inside as well as outside the HLA region. Most studies on clinical subtypes of leprosy have compared affected individuals, either paucibacillary or multibacillary, to unaffected individuals. Our study aims at identifying the genes that impact on the polarization of leprosy per se towards a multibacillary or a paucibacillary form of the disease by performing a genome wide association on familial data from Southern Vietnam.

Methods: Families with at least one child affected by leprosy were enrolled by local physicians at the Dermato-Venerology Hospital in Ho Chi Minh City, Vietnam. Leprosy status was first classified according to the Ridley Jopling classification (LL, BL, BB, BT, TT) and then binarized as follows: LL, BL and BB individuals were classified as “multibacillary”, whereas BT and TT were classified as “paucibacillary”. DNA was extracted in Vietnam. Genotyping of more than 600,000 Single Nucleotide Polymorphisms (SNPs) was performed using the Illumina Human660W beadchip. Statistical analysis were performed using several softwares including the popular PLINK, FBAT and ROADTRIP.

RESULTS: Results: We enrolled 680 families including a total of 925 individuals and 1310 controls, among which 511 were multibacillary and 395 paucibacillary. Male/female sex ratio was 2.5/1 in accordance with the literature. Median age at diagnosis was lower than 25 years both for multibacillary and for paucibacillary cases. The vast majority of the individuals (i.e. >95%) was of Kinh origin. Applying very stringent quality controls led to the selection of more than 450,000 SNPs. When contrasting allele transmission from parents to affected children displaying either the multibacillary or the paucibacillary form of the disease, 32 SNPs reached suggestive genome wide association significance (p < 10^{-5}). Of note, none of these SNPs belonged the HLA region. A small preliminary “internal” replication using the independent set of parents of our sample (130 multibacillary and 80 paucibacillary independent parental cases) confirmed several of the original findings.

Conclusion: Our study is the largest genome-wide association study with familial data on leprosy ever, and the first to directly compare multibacillary to paucibacillary leprosy cases. Preliminary results suggest that genes from the HLA complex do not participate to the polarization of the disease. By contrast, there is clear evidence that previously unnoticed genes account for this polarization. We are currently replicating and validating the most promising SNPs in two population-based case-control samples from Vietnam and Brazil. Functional explorations of the most convincingly associated SNPs will be conducted to disentangle the molecular identity of the implicated pathways.
**Presentations**

**Presentation Time:** Thursday 19/09/2013 at 11:00 – 12:30

**Symposium Session:** Leprosy Control

**Presenter:** Thilakavathi Subramanian

**Patients’ Perceptions on Disclosure of Leprosy by Health Care Providers in South India: Relevance to Leprosy Control**

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**Introduction:** Stigma, isolation and discrimination are typically associated with diagnosis of leprosy and its disclosure. Health care providers (HCP) always find it challenging to disclose the diagnosis of leprosy to patients and their family members. Some health workers never disclose their diagnosis to patients and avoid mentioning leprosy. We explored perceptions of leprosy patients in South India regarding disclosure of leprosy disease status to them by health workers.

**Methods:** From a rural community covering 7 peripheral health facilities (Population size of 200,000 in 148 villages) near Chennai, South India; both pauci-bacillary (PB) and multi-bacillary (MB) patients registered during 1991-1999 or those newly detected during 2008-2011 were considered for inclusion in the qualitative study (n=704). A trained investigator obtained written informed consent of the willing respondents and collected information through in-depth interviews in Tamil, the local language. The interview guide covered inquiry about knowledge, attitude and social acceptance in the context of disclosure of leprosy.

**Results:** We interviewed 155 of 648 purposively selected patients from 53 out of 143 villages in the study area. Of the 155 patients, 31 (20%) reported that they were not informed of their disease by HCP. They were informed to be having skin disease or a skin patch. Of these 31 patients, 23 were women; most of them were PB, except a single case of MB. Seven of these patients (2 male, 5 female) who had not yet started on treatment mentioned: ”I did not know it is leprosy; I was told that it is a skin patch; so I did not take it seriously; but I was given tablets for one month; I have kept them safely but not taken even a single dose...” ”I was informed that I have only skin disease and nothing else; why should I take any treatment; there was no need.” ”I was told by the health personnel that I have a skin patch; I did not know what it is; they did not tell us about anything about that...” ”When I was 10 years of age I had treatment for skin problem. I do not know much about the treatment.” Non-disclosure about leprosy by HCP was reported by 7 men and 15 women. ”I was told by the health personnel that I have a skin disease.” They did not tell us anything about leprosy, she told us only as a skin problem, anyhow, it is OK, so we are not that much bothered.

**Conclusion:** From public health point of view, non-disclosure of leprosy by HCP is an issue. The patients may not get alerted and cautioned about seriousness of the disease. This may adversely affect acceptance and adherence to treatment. Inadequate or lack of treatment can lead to progression of diseases and occurrence of deformity. In the context of general decline in the burden of leprosy in India and lack of expertise in primary health care settings, HCP need to be re-oriented on disclosure of leprosy to patients and not hiding the disease diagnosis from them in view of its implications on prevention and control of leprosy.

**Conclusion:** As expected, NATZU presented a significant difference between geographic regions in Brazil. This observation should be taken into consideration when defining therapeutic schemes for diseases using drugs metabolized by this gene.

**Presentation Time:** Thursday 19/09/2013 at 11:00 – 12:30

**Symposium Session:** Leprosy Control

**Presenter:** Weena Primkaw

**Cost-Effectiveness Analysis of Combined Active and Passive versus Passive Leprosy Case Detection Alone in Thailand**

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**Introduction:** Leprosy is one of infectious disease which leads to physical and social consequences for those who affected. Regarding leprosy situation in Thailand, it has been shown that the prevalence rate has been gradually declined from 5.15 cases per 10,000 in 1964 to 0.17 case per 10,000 inhabitants in 2007. According to WHO definition, the prevalence of less than 1 per 10,000 populations means that leprosy is not a public health problem. However, the proportion of new cases with grade 2 disability at the time of diagnosis has not declined which could be interpreted that the delayed diagnosis still exists, since 1984 to 2007 has been between 11.76% and 11.46%.

Case finding is one of the core activities of leprosy elimination and control. There are two methods of case finding which are: active case detection (ACD) and passive case detection (PCD). As prevalence rate has gradually declined and the budget is limited, appropriate case detection is needed. The researcher, therefore, is interested to carry out a comparative study of passive case detection alone and combined active and passive methods of leprosy case detection, to find out which one is most effective.

**Methods:** This study is a retrospective analytic study, is focused on the analysis of the cost for combined ACD and PCD versus PCD alone method in which how to calculate the costs for each case detection methods, how to determined as the number of case detection and the data come from primary data, secondary data from the leprosy elimination program of Thailand (2006).

**Results:** The major objective of this study is to analyze the cost and effectiveness of different case finding activities. Combined active and passive leprosy case detection versus Passive leprosy case detection alone for the year 2006 in Thailand, from provider as well as patient perspectives. In this study, effectiveness in terms of new cases detected is used to find out which method of case finding activity is better. The cost-effectiveness ratios are calculated for non-endemic and endemic areas. The total cost, from the provider perspective, of the combined ACD and PCD method was 1,427,800.23 Baht and the number of newly detected cases 35. The cost-effectiveness ratio was 40,794.29 Baht. The total cost, from provider perspective, of the PCD alone method was 1,340,230.20 Baht, with 16 newly detected cases. The cost-effectiveness ratio was 83,764.39 Baht. The total costs from a patient perspective were similar in both combinations, higher in non-endemic areas than in endemic areas. This study concludes that the combined ACD and PCD method successfully detected more new cases than the PCD alone method. At the time of detection, using ACD, 8.3% cases had a disability of grade 2 compared with 14.3% and 12.5% using ACD and PCD; and PCD alone method as respectively. This may reflect the delay in case detection using PCD alone method. When we use weight calculation, the result is that the cost-effectiveness ratio of PCD alone method is 1.27, 1.19, and 1.24 times is higher than combined ACD & PCD method in non-endemicareas, endemic area, and region level respectively.

**Conclusion:** The combined ACD and PCD method successfully detected more number of newly detected case than PCD alone method. At the time of detection by ACD, 8.7% cases had disability grade 2. This may be a reflection of a delay in case detection of PCD alone method.

**Presentation Time:** Thursday 19/09/2013 at 11:00 – 12:30

**Symposium Session:** Leprosy Control

**Presenter:** Mary Gorrel Nabukenya-Mudiope

**Coping with Leprosy in a Low-Endemic Country: The Surveillance Perspective**

M. G. Nabukenya-Mudiope 1, 2, H. J. Kawa 1

1German Leprosy and TB Relief Association (GLRA), Kampa, Uganda

**Introduction:** The Uganda Ministry of Health-National TB/Leprosy Programme (NTLP) has observed a diminishing trend of newly detected leprosy cases since 1992 when the programme was formed. In spite of having achieved the World Health Organization (WHO) leprosy elimination target in 2004, the NTLP still faces challenges of establishing a rationale for focusing programmatic leprosy specific interventions to sustain control activities. In order to address the challenge, we analyzed the trends in the characteristics of new leprosy cases from 2002 to 2011 in Uganda by region of initial registration.

**Methods:** Patient and disease characteristics of newly diagnosed leprosy cases (2002 to 2011) were retrospectively extracted from the electronic database maintained by German Leprosy and Tuberculosis Relief Association (GLRA) Uganda. This information was validated by the investigator using copies of NTLP quarterly reports on leprosy control submitted by each district in Uganda kept at the GLRA office. The data were analysed using STATA version 11.2.

**Results:** From 2002 to 2011, the NTLP registered a total of 4198 new leprosy patients on multidrug therapy (MDT). A sharp increase in the notification of new leprosy cases was observed from 2002 (330 cases) to 2004 (622 cases) and a gradual reduction to 340 cases in 2011. Most of the new cases were between the ages of 25 and 64.9 years. About 10% of annual notifications were children (<15 years). Male to female proportions were similar. Over two-thirds of annual notifications were of Multibacillary (MB) leprosy type with increasing proportion in the last five years. The proportion of new cases presenting with grade 2 disability annually has remained high recording 25% in 2011.

North and North Western zones of NTLP contributed half of the overall notification and 75% of all notified children (<15 years). The productive age group (25-65years) remained predominant in the regions except North East which showed no trend. Four (Kampala, South West, North East and South East) of the nine zones registered more males than females at least in the last 5 years and others showed similar proportions of males to females. The proportion of MB leprosy was lower in North and North Western zones compared to the rest of the zones that registered fewer number of MB cases. The proportion of new cases presenting with grade 2 disability was higher in zones that notified fewer cases annually.

**Conclusion:** The higher burden of leprosy and children proportion noted in the North and North Western zones of NTLP over the years present them as priority areas for a full range of leprosy control.
specific interventions. Measures to sustain community and health worker awareness of leprosy with the support of an appropriately integrated referral system are recommended for the zones that notify fewer leprosy cases.

Methods: 375 subjects in the age group 5-60 years from resettlement village of cured leprosy patients were selected and recruited for the study after obtaining informed consent. Nasal swabs and saliva samples were collected for testing M. leprae DNA and M. leprae reactive antibodies (ML-IgA) respectively. Subjects were followed four times every three months. Soil samples were collected from 50 different locations for testing M. leprae. Whole blood assays (WBA) and humoral immune response (antibodies against ND-O-BSA, native PGL and LAM) were tested for 50 subjects who consented to give blood.

Results: Large number of subjects from all age groups showed presence of nasal M. leprae (ranging from 6.6% to 14.1%) in different follow ups. PCR positivity in children was higher than the adults in all follow ups. More than 70% population (ranging from 70.6% to 82%) showed ML-IgA in saliva but the response in children was significantly lower than in adults in all follow ups. No difference was seen in ML-IgA response in male and female subjects. There was no association between ML-IgA status and BCG vaccination history of the subjects. Nasal PCR positivity appeared transient in nature with some subjects showing repeated exposure. In every follow up we found large proportion of PCR positive subjects with history of disease (ranging from 33.3% to 56.6%). 9 out of 50 soil samples showed presence of M. leprae DNA. Antibodies (IgG and IgM) against PGL (44%) and 42% of the subjects respectively and LAM (48%) and 27% respectively were also detected. WBA assay showed increased production of TNF-α and IFN-γ when challenged with 35KDa antigen.

Conclusion: Results show that subjects residing in resettlement village are not only widely exposed to M. leprae but there is frequent and repeated (direct or indirect) exposure increasing the risk of reinfection.

Methods: A total of 374 patients were recruited for this study. There were 141 females and 233 males. The age of the patients ranged from 3 years to 80 years, with 66% between 15 and 44 years. There were 35 male and 32 female children. The main occupations were manual laborer/farmer (29%), students (29%), housewife (22%), Skilled labourers (10%). Tradesmen, Clerical / professional (9%) and others (6%) etc. 72% were either illiterate or had only primary education. The reason for visiting the hospital was for a patch 53%, anaesthesia 22%, and reaction 16%. Ulcer and/or deformity 9% and 1% came for non leprosy symptoms. 52% of the patients came within 6 months of the symptoms, whereas 30% came between 6 months to 1 year and the rest 18%, delayed even upto 5 years. The bacterial Index was 0 in 84% of patients while 6%, had a BI <2 and 10%, had BI above 2.

Conclusion: An analysis of socio demographic aspects of this study population shows that the risk of leprosy is more among illiterate, adult people especially in the 3rd and 4th decades and that more males than the females report for medical care. WHO disability grades show that patients are still delaying before seeking treatment, resulting in impairments and disabilities. 34% had to be given steroids for reaction and neuritis along with Multi Drug Therapy at the first visit, which was considered as a cause for concern.

Methods: Longitudinal cohort study was undertaken to understand transmission dynamics of Mycobacterium leprae by testing nasal carriage and mucosal immune response in subjects from resettlement village of cured leprosy patients.

Results: An analysis of socio demographic aspects of this study population shows that the risk of leprosy is more among illiterate, adult people especially in the 3rd and 4th decades and that more males than the females report for medical care. WHO disability grades show that patients are still delaying before seeking treatment, resulting in impairments and disabilities. 34% had to be given steroids for reaction and neuritis along with Multi Drug Therapy at the first visit, which was considered as a cause for concern.
LONG TERM OUTCOME OF TIBIALIS POSTERIOR TRANSFER FOR CORRECTION OF FOOT DROP IN LEPROSY: REPORT FROM REGIONAL LEPROSY TRAINING AND RESEARCH INSTITUTE SERVING AN ENDEMIC AREA IN INDIA

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Introduction: Approximately 25% patients with leprosy have lateral popliteal nerve involvement of variable degree and 2-5% patients with leprosy develop foot drop, a result of paresis of the muscles of the anterior and lateral compartments of the leg. The goal of the corrective surgical procedure is to provide a stable plantigrade foot and restoration of normal gait. We report long term outcomes of circumtibial (CT)-transfer of tibialis posterior (TP) in a large number of patients from a single centre.

Methods: Total of 236 patients with median age of 37.27 years underwent posterior tibial tendon transfer by the CT route for leprosy related foot drop (January 2001: December 2011). Of these, 165 procedures were performed at the tertiary referral institute; 71 procedures were performed by an out-reach team as camps at district hospitals of Chhattisgarh and Madhya Pradesh states of central India. 221 patients with a 2-5 year follow up were included while 15 patients were excluded in the study as they lost to follow-up. A total of 4 patients underwent bilateral corrective operation of foot drop. The pre and post-operative physical therapy was prearranged for all patients. At the time of reporting, the median follow-up was 4 years (1-10 years). Surgical outcomes and functional improvements were measured using a standard Stanmore system that utilizes scoring from 7 different functional categories for a total score of 100.

Modified Srinivasan’s method as described was utilized in all the patients: Tendoachillis is routinely lengthened by percutaneous tenotomy so that the foot can be passively dorsiflexed to at least 60-70°. After harvesting the tibialis posterior from the navicular bone the tendon bifurcation was carried out 2-3 cm above the ankle to provide pull vertically. Two slips of tibialis posterior were delivered subcutaneously into the lateral incision instead of medial; this helped reducing the recurrent inversion. The lateral slip is sutured first with the tendo of Extensor Digitum Longus and peroneus tertius. This will facilitate the eversion at the ankle. The medial slip of the tibialis posterior is attached to the tibialis anterior instead of Extensor Hallucis Longus. Proximal shifting of the attachment of medial slip reduced the effective length of the tendon so that the pull becomes more vertical during act of dorsiflexion. The leg and foot were kept in a dorsiflexion splint while suturing the tendons.

Results: Mean postoperative dorsiflexion in 190 males and 31 females was 11.16° (SD 2.75). Out of 221 patients 191 were MB cases while 30 were PB case. Assessment using the Stanmore system revealed excellent results in the majority of patients. For patients with 1-3 years follow up (n=104), 4-7 years follow up (n=90) and 7.10 years follow up (n=31)optimum surgical correction and functions were achieved in 100%, 97.7% and 94% respectively. Functional comparison between pre-operative and post-operative phases were statistically significant (0.001) following surgery (paired t test). Suboptimal outcome in two patients was a result of puckering at surgical wound at medial lower 3rd leg (n=01) and early weight bearing by the patient in the post-operative surgery (paired t test). suboptimal outcome in two patients was a result of puckering at surgical wound at medial lower 3rd leg (n=01) and early weight bearing by the patient in the post-operative surgery (paired t test).

Conclusion: Modified Srinivasan’s Method for tibialis posterior transfer is safe and effective that this got recognised. The modifications of the procedures served the patients concerned well and we are happy to see that this got recognised.

FACTORS IMPACTING FORM AND FUNCTION OF HAND FOLLOWING CLAW CORRECTION USING LASSO PROCEDURE

M. Ebenezer 1, 2, S. Partheenbarajan 2, K. Basha. G 3

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Introduction: The objective of this paper is to study the factors that have an impact on the anatomiical and functional outcome of claw hand correction by Lasso procedure. In this procedure the flexor digitorum superficialis tendon of the middle finger is transferred to the A1 pulley by looping the tendon over the pulley. This will enable flexion at the metacarpophalangeal joints which is essential for an effective grip.

Methods: A total of 32 hands in 32 patients who underwent claw hand correction by Lasso procedure at the Schieffelin Institute of Health Research Leprosy Centre were studied prospectively between August 2010 and July 2012. All hands were assessed preoperatively, after postoperative physiotherapy and at three months follow up. The surgical outcomes measured were Brand’s Evaluation criteria, grip strength, pinch strength and subjective assessment of the patients through a Visual Analogue Score (VAS). The factors studied for impact were age, gender, duration of paralysis, level of paralysis, degree of contracture, duration of physiotherapy and number of fingers involved.

Results: The overall results showed 82.7% excellent or good results and 17.3% patients had fair or poor results. Under subjective assessment 72.4% were fully satisfied, 10.3% satisfied, 6.9% partially satisfied and 10.3% were unsatisfied. The overall results were comparable with other studies even though other studies did not assess results from subjective assessment of patients. The grip strength (pre = 3.1 kg/post = 6.3 kg) and the pinch strength (pre = 1.8 kg/post = 2.9 kg) showed significant improvement at three months follow up. However grip and pinch strength showed a decrease at postoperative discharge. Age (p=0.06), number of fingers involved (p=0.91), level of paralysis (p=0.78), preoperative contracture (p=0.94) and duration of pre operative physiotherapy (p=0.64) did not show any statistically significant difference on the results. Gender (p=0.01), type of leprosy (p=0.004), duration of paralysis (p=0.005) and Long flexor contracture (p=0.02) showed statistically significant difference on the results.
significant impact on the results when assessed alone. However logistic regression analysis showed that all of the factors long flexor contracture alone had a statistically significant independent effect on the results of surgery.

Conclusion: In conclusion, Lasoo procedure using middle finger sublimis tendon gives good anatomical and functional results with presence of long flexor contracture affecting results.

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Presentation Time: Thursday 19/09/2013 at 11:00 – 12:30
Symposium Session: Reconstructive Surgery
Presenter: Dr Surendra Pati

FEASIBILITY OF RECONSTRUCTIVE SURGERY AND ITS IMPACT IN GENERAL HEALTH CARE INCLUDING EVALUATION RESULT

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Introduction: Reconstructive surgery (RCS) is one of the main components of DPMR and the last resort to correct the disabilities and this service remained limited to premier leprosy institutions. It was viewed as a subject of least priority in GHS. Though MDT services were accepted in PHCs, building RCS facility failed to be integrated. As per the DPMR guidelines, medical colleges and PMR institutions (designated as tertiary centers) are expected to undertake RCS. The distance of these institutions greatly limits the accessibility for the patients. The partners correct through RCS require patient’s cooperation in the form of meticulous self-care of the part for years and some cases lifelong. Hence good counseling and follow up are crucial for the maintenance of corrected positions. The objectives of the present study is to find out, if RCS could be successfully carried out in secondary care centers (district hospitals) and evaluate the long term status of disability correction.

Methods: LEPRA India, the ILEP Coordinator for Odisha, initiated RCS in the GHC system in the state, by visiting surgeons who also trained 14 Govt. surgeons in RCS. This facility was expanded to as many as 11 institutions which included 4 medical colleges (MCs) and 7 district hospitals (DHs). Though all district level centers are continuing the services sharing their general OTs with leprosy cured persons, the services could be continued only in one MC. Patients were identified by the DPMR clinics at PHCs and district hospitals and finally shortlisted as per suitability, jointly by the surgeons and phys-technicians of LEPRA India. Initially there were many challenges. Stigma amongst the health workers, incentive, perceptions as non-priority, shortage of bed are encountered in the institutions. For the disabled persons, wage loss due to long time spent in pre-op preparation and post-op precautions, fear for surgery required long motivation. A follow up assessment was done in the 1st quarter of 2012 with well defined parameters. These included open hand and lumbrical positions and fist for claw fingers; abduction for thumb; inner range of motion for fingers. The assessment was done in the 1st quarter of 2012 with well defined parameters. These included open hand and lumbrical positions and fist for claw fingers; abduction for thumb; inner range of motion for fingers.

Conclusion: Successful RCS is feasible in integrated setup. RCS in district hospitals seems more practical. Males outnumber the females in awaiting both RCS and follow up services. High proportion awaiting RCS belong to productive age group. Good outcome is higher in foot surgeries. Initial challenges are considerable in the process.

O-227
Presentation Time: Thursday 19/09/2013 at 11:00 – 12:30
Symposium Session: Reconstructive Surgery
Presenter: Mr. Premal Das

A LONG TERM ASSESSMENT OF FUNCTIONAL, ECONOMICAL AND SOCIAL BENEFITS OF RECONSTRUCTIVE SURGERY AMONG 125 LEPROSY PATIENTS WITH HAND DEFORMITIES

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Introduction: Leprosy is known to cause physical deformities due to autonomic, sensory and motor neuropathy. These deformities can be partially corrected with physiotherapy and reconstructive surgery (RCS). Often leprosy patients with hand deformities experience limitation in activities of daily living (ADL) and livelihood that restricts their social participation in society. Surgical rehabilitation has made significant advances in correcting visible deformities due to leprosy leading to functional improvement and social acceptance of the leprosy patients. Although short term results (less than 1 year) of surgery are documented, evidence on long-term benefits is not recorded. This study was aimed to qualitatively assess the progress in functional, economical and social status of the leprosy patients after surgery that is sustained over a long period of time.

Methods: 125 leprosy patients, aged between 16 to 60 years (out of 1277 cases underwent reconstructive surgery during 2001 to 2010 for the correction of hand deformities due to Ulnar & Median nerve palsy) were contacted during 2012. The effect of surgery on hand functions in work related activities as well as changes in economical and social status was assessed using a pre-tested questionnaire tool. Different scales for qualitative measures and grading were used to assess the effect of surgery based on the patients’ perception.

Results: 65% of leprosy cases had duration more than 5 years after surgery and 77% were male out of 125 cases assessed. It was observed that 96% of right hands and 87% of left hands had residual deformities with varying degrees at post surgery. 27% of leprosy cases engaged in manual labour before surgery were unable to do the same after surgery. 19% and 9% of leprosy cases with monthly income less than 3,000 and 3001 to 5,000 Indian Rupees respectively had no income after surgery. 60% of cases had difficulty in continuing the work related to hand functions that was not difficult before surgery. 3% and 20% of cases had social problem within family and distant neighbors respectively.

Conclusion: Study revealed that the hand surgery had very limited effect on the functional, economical and social advantage in majority of the leprosy patients during post surgery. These results do emphasize the need for a prolonged post-operative care in order to make difference in the lives of leprosy patients who undergo surgery.

O-229
Presentation Time: Thursday 19/09/2013 at 11:00 – 12:30
Symposium Session: Specialised Centres
Presenter: Dr Premal Das

TIME TRENDS IN MB :PB RATIO AMONG UNTREATED LEPROSY PATIENTS ATTENDING A REFERRAL HOSPITAL IN UP, INDIA DURING 2001 TO 2010

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Introduction: Multibacillary (MB) leprosy patients are the major source of infection and therefore their early detection becomes critical in The National Leprosy Eradication Programme. The Government of India’s current thrust is to focus on the New Case Detection Rates and promote early reporting to primary health centres, government dispensaries and other integrated centres. However, this has not yet had significant results as large numbers of new cases are still reporting with disabilities. There may be other issues like stigma, a perception that it may disappear by its own, and many patients are still ignorant of the integration of leprosy into general health services and may still prefer to report to leprosy hospitals that delay reporting.

In order to investigate these issues, a study was done on the time trends in MB:PB ratios of untreated leprosy patients attending a major referral hospital in Uttar Pradesh India during the period 2001 to 2010.

Methods: This is a retrospective study done by record review. The Leprosy Mission Community Hospital at Naini in Allahabad district, U.P. is more than 130 years old hospital, and currently registers the largest number of untreated leprosy patients in any other TLM hospital in India. It has 150 beds, 93 staff, and registers 3000 new cases and 20,000 repeat visits of leprosy cases per year. The medical record department is well organized to register all patients, new and old, ensure complete data entries, both base line and follow-up visits, using a unique registration number for each patient. The hospital has now instituted electronic medical records to capture and store all data for better patient management.

For the purpose of this study, relevant data from the year 2001 to 2010 were extracted from the medical records, entered on to Excel sheets and analyzed using SPSS package. Percentages and Ratios were computed and the differences tested for statistical significance.

Results: The total number of new untreated leprosy cases has increased significantly from 952 in 2005 to 1517 in 2010, though the MB percent among new patients has not shown any noticeable difference statistically over a decade. The proportion of children among new cases was 6.4% in 2001 and almost 7 % (6.98) in 2010 showing no significant change in the trend and the proportion of female cases was 24.4 % in 2001 and 28.6% in 2010 showing an increase of more than 4 %, which shows that women are still at a disadvantage in accessing medical care.

Conclusion: Taking into account these factors, the finding in this study that MB proportion shows no significant declining trend indicating that we are no closer to eradication than we were a decade ago, and much greater intervention will be required to promote early detection of MB cases, whether children or adults, male or female. It is hoped that eradication of leprosy will slowly become a reality in India, but the present data do not substantiate this hope. A similar study should be done in the community which might present a clear picture about the trends of MB proportion in leprosy and would distinguish more clearly the epidemiological factors from the operational.
**DIABETIC STATUS IN LEPROSY PATIENTS IN TWO REFERRAL CENTRE IN BIHAR AND JHARKHAND, INDIA**

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**Introduction:** India having the highest number of diabetic patients in the world, the sugar disease is posing an enormous health problem in the country. Calling India the diabetes capital of the world, the International Journal of Diabetes in Developing Countries says that there is alarming rise in prevalence of diabetes, which has gone beyond epidemic form to a pandemic one. The International Diabetes Federation estimates that the number of diabetic patients in India more than doubled from 18 million in 1995 to 40.9 million in 2007. It is projected to increase to 69.9 million by 2025. Currently, up to 11 per cent of India’s urban population and 3 per cent of rural population above the ages of 15 have diabetes. Diabetes affects all people in the society, not just those who live with it.

India also contributes the highest No. of leprosy cases in the world. The report says 127000 new leprosy cases have been registered in Govt. health center for treatment. Leprosy diseases produces an aesthesis in foot and heel, due to this patients are very much prone to get ulcer in there and hand & Feet. If this attach with diabetic the risk are very high in individual. One of cause for non-healing of Ulcer is diabetic.

The aim of this study is to know the diabetic status in leprosy patients in East Champaran (Bihar) and Dhanbad (Jharkhand).

**Methods:** Blood Sugar test sum self-care camp will be organized in Little Flower Hospital Sundarpur Rasaul and Ramgadhwa leprosy colony and jamadoba colony in Dhanbad with the support of LEPRA India Bihar and Little Flower Welfare Association. All the patients will be informed about diabetic testing, purpose and taken their written consent.

Firstly all the patients were checked for random blood sugar and those will find positive (140) will be tested again the next day for fasting and PP. One puncher kit and testing kit will be used for only one patient. Those who will find blood sugar high in Fasting and PP (2 hours after meal) will be counseled for their status and will refer to districts hospital for further treatment.

**Results:** In this study 828 leprosy patients has been examined for random test of blood sugar. 133 person (70 are with no disability and 63 with multiple disability) are found as positive for blood sugar (more than 140), which are more than 15% of tested population. Again these 133 people have tested for fasting and PP in next day. 128 patients are found positive for fasting and PP. The 345 are person with the below the age group of 45. Out of 128 person, 37 person having ulcer in their feet. May be diabetic is the non-healing factor in these 37 cases.

**Conclusion:** This study revealed that the incidence of diabetes is higher in the leprosy patients.

As a result, this study recommends that at least all leprosy patients having disability (WHO Grade I and II) should be screened for diabetes. Further study will require knowing the high incidence of diabetic in leprosy patients.
THE EFFECTIVENESS OF PREVENTION OF IMPAIRMENT AND DISABILITY (POID) IN LEPROSY THROUGH TERTIARY LEPROSY REFERRAL HOSPITALS IN INDIA

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**Introduction:** The Leprosy Mission Trust India (TLMTI) has 14 Government of India recognised Tertiary Leprosy Referral Hospitals. In 2011, the hospitals saw 6688 newly diagnosed leprosy cases; 15.3% with Grade I and 22.1% with Grade II disability, together constituting 37.4% impairment and disability at time of diagnosis. Around 88% of leprosy admissions in 2011 were for prevention of impairment and disability (POID) and around 72% of new Care after Cure patient registrations were for POID related reasons.

To assess the effectiveness of its POID interventions in the areas of Reactions & Neuritis; Ocular complications of Leprosy and Management of insensitive extremities (hands and feet); and to recommend more effective ways for POID, TLMTI conducted a POID Audit in 2012 in 6 hospitals in 6 states, from which findings have emerged that are relevant to any Tertiary Leprosy Hospital.

**Methods:** The Audit was designed by a team of POID leprosy experts (internal and external to TLMTI) and field tested in March 2012. The Audit was conducted in 6 hospitals from April - June 2012. Audit teams consisted of physiotherapists, occupational therapists and doctors. Data was collected through Observations, Semi structured interviews and Focus Group Discussions with staff and patients, random sampling of patient records and 5 year data of the hospitals.

**Results:** Cases of Reaction and Neuritis show decreasing 5 years trends in all 6 hospitals. 34%-54% of reaction and neuritis cases diagnosed in 2011 presented early enough (nerve function impairment <6 months) for steroid and physiotherapy interventions. 1 hospital had an increasing trend of patients reporting with established deformity. While steroid initialising rates were good, ranging from 92%-100%, steroid completion rates were consistently poor ranging from 25% - 71% in 2011. Reasons contributing to this have been ascertained. There were very good outcomes for patients who completed their steroid courses. Regarding the 29% - 75% steroid defaulters who did not complete their course with these hospitals, there is no information on status of their condition; whether they were continuing treatment elsewhere or whether they were self dosing on steroids. No hospital has any reliable mechanism or system in place to identify or retrieve steroid defaulters. All 6 hospitals reported decreasing trends of recent onset lagophthalmia and 1 reported an increasing trend of established lagophthalmia. There are large numbers of patients not screened for ocular complications. 6 hospitals show decreasing 5 year trends in newly registered patients with insensitive feet. There is no data available on the insensitive hands. All 6 hospitals show decreasing 5 year trends in ulcer admissions. Management of ulcers with POP immobilization (Moulded double rocker shoe, window POP with Bohler iron, POP splats for ulcers of lower extremities) is showing a decreasing trend.

**Conclusion:** Research is needed to understand factors influencing early and late reporting by patients so as to formulate interventions for early reporting to prevent impairment and disability. Reasons for decreasing trends need study- whether cases for POID are actually coming down or being treated elsewhere and correctly. There are very good outcomes for patients who completed their steroid courses. Regarding the 29% - 75% steroid defaulters who did not complete their course with these hospitals, there is no information on status of their condition; whether they were continuing treatment elsewhere or whether they were self dosing on steroids. No hospital has any reliable mechanism or system in place to identify or retrieve steroid defaulters. All 6 hospitals reported decreasing trends of recent onset lagophthalmia and 1 reported an increasing trend of established lagophthalmia. There are large numbers of patients not screened for ocular complications. 6 hospitals show decreasing 5 year trends in newly registered patients with insensitive feet. There is no data available on the insensitive hands. All 6 hospitals show decreasing 5 year trends in ulcer admissions. Management of ulcers with POP immobilization (Moulded double rocker shoe, window POP with Bohler iron, POP splats for ulcers of lower extremities) is showing a decreasing trend.

ADVANCED ADVERSE EFFECTS OF AZATHIOPRINE IN AN RCT IN LEPROSY REACTIONS AND NEURITIS

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**Introduction:** A Double Blind Randomised Controlled Trial comparing placebo, with 24, 36 and 48 weeks of Azathioprine, added to a 20 week course of Prednisolone, for treating Type 1 reaction and neuritis in leprosy was undertaken in 4 leprosy referral hospitals in 4 endemic states in India. This paper describes the adverse effects of Azathioprine encountered during the study.

**Methods:** Patients with Type 1 Reaction and new neuritis were recruited and assessed for Nerve Function Impairment and allotted randomly to one of four arms with four different regimens of the study. Azathioprine was given at a dose of 50 mgs daily and Prednisolone was started at a dose of 40 mgs, tapered over a period of 5 months. 276 patients were also taking MDT (Rifampicin, Dapsone and Clofazamine) during the trial. Monitoring of adverse reactions was done fortnightly for first 8 months, monthly. Monitoring of adverse reactions was done fortnightly for first 8 months, monthly.

**Results:** The adverse side effects encountered were: nausea, vomiting, gastritis, loss of weight and ill health which affected 9 patients sufficiently to require withdrawal. 4 patients developed infections including multi-drug resistant melioidosis (2), infective gastroenteritis and jaundice respectively.

**Conclusion:** Research is needed to understand factors influencing early and late reporting by patients so as to formulate interventions for early reporting to prevent impairment and disability. Reasons for decreasing trends need study- whether cases for POID are actually coming down or being treated elsewhere and correctly. There are very good outcomes for patients who completed their steroid courses. Regarding the 29% - 75% steroid defaulters who did not complete their course with these hospitals, there is no information on status of their condition; whether they were continuing treatment elsewhere or whether they were self dosing on steroids. No hospital has any reliable mechanism or system in place to identify or retrieve steroid defaulters. All 6 hospitals reported decreasing trends of recent onset lagophthalmia and 1 reported an increasing trend of established lagophthalmia. There are large numbers of patients not screened for ocular complications. 6 hospitals show decreasing 5 year trends in newly registered patients with insensitive feet. There is no data available on the insensitive hands. All 6 hospitals show decreasing 5 year trends in ulcer admissions. Management of ulcers with POP immobilization (Moulded double rocker shoe, window POP with Bohler iron, POP splats for ulcers of lower extremities) is showing a decreasing trend.

**Conclusion:** Research is needed to understand factors influencing early and late reporting by patients so as to formulate interventions for early reporting to prevent impairment and disability. Reasons for decreasing trends need study- whether cases for POID are actually coming down or being treated elsewhere and correctly. There are very good outcomes for patients who completed their steroid courses. Regarding the 29% - 75% steroid defaulters who did not complete their course with these hospitals, there is no information on status of their condition; whether they were continuing treatment elsewhere or whether they were self dosing on steroids. No hospital has any reliable mechanism or system in place to identity or retrieve steroid defaulters. All 6 hospitals reported decreasing trends of recent onset lagophthalmia and 1 reported an increasing trend of established lagophthalmia. There are large numbers of patients not screened for ocular complications. 6 hospitals show decreasing 5 year trends in newly registered patients with insensitive feet. There is no data available on the insensitive hands. All 6 hospitals show decreasing 5 year trends in ulcer admissions. Management of ulcers with POP immobilization (Moulded double rocker shoe, window POP with Bohler iron, POP splats for ulcers of lower extremities) is showing a decreasing trend.

**Conclusion:** Research is needed to understand factors influencing early and late reporting by patients so as to formulate interventions for early reporting to prevent impairment and disability. Reasons for decreasing trends need study- whether cases for POID are actually coming down or being treated elsewhere and correctly. There are very good outcomes for patients who completed their steroid courses. Regarding the 29% - 75% steroid defaulters who did not complete their course with these hospitals, there is no information on status of their condition; whether they were continuing treatment elsewhere or whether they were self dosing on steroids. No hospital has any reliable mechanism or system in place to identity or retrieve steroid defaulters. All 6 hospitals reported decreasing trends of recent onset lagophthalmia and 1 reported an increasing trend of established lagophthalmia. There are large numbers of patients not screened for ocular complications. 6 hospitals show decreasing 5 year trends in newly registered patients with insensitive feet. There is no data available on the insensitive hands. All 6 hospitals show decreasing 5 year trends in ulcer admissions. Management of ulcers with POP immobilization (Moulded double rocker shoe, window POP with Bohler iron, POP splats for ulcers of lower extremities) is showing a decreasing trend.
4 patients died during the study. The cause of death in 1 patient could be attributed to Azithromycin and steroids. 2 patients died within the first 2 weeks into the study period, so their deaths could not be attributed to the trial drugs.

Conclusion: Azithromycin is associated with a high rate of adverse effects and has a significant interaction with Dapsone. It should be used with caution in a low resource setting.

**O-236**

**Presentation Time:** Thursday 19/09/2013 at 14:00 – 15:30

**Symposium Session:** Chemotherapy - Newer Drugs

**Presenter:** Amar Kant Jha Amar

**2 MONTHS OLOXACIN & SPARFLOXACIN FOLLOWED BY 12 MONTHS MB MDT IN LL TYPE LEPROSY WITH BI FIVE TO SIX**

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Introduction: In routine programme MB MDT is given as blister pack for 12 months (28 days a month). BI or MI is not routinely done. About 20% of cases of LL type respond poorly to routine therapy at RFT stage. Unresponse cases show positive MI at this stage and respond properly since MDT is prolonged for another 12 or 24 pulses. This envisages modification in routine MDT with addition of newer drugs for initial two months to optimise for better result.

Methods: 680 Cases of Hansen’s disease in the age group of 15-60 years (450 Males & 230 Females) with initial BI 5 or 6 were randomised in 2 treatment groups:

- Group A (340): MBT (MD) Adult blister packs for 12 months + Oloxxacin (400 mg OD) & Sparfloxacin (500mg OD) for initial 2 months
- Group B (340): Routine MB MDT Adult for 12 months

Cases were evaluated on the parameters of (a) Decrease in size & No. Count (b) Decrease in anaesthesia (c) Improvement in nerve thickening/tenderness (d) BI, M1, SFG Indices (e) Histopathology on the grade of good/average/poor (3 to 1) [Max grading point 15 & Minimum 0] every 3 months upto 12 months.

Results:

- Group A
  - Completing Therapy: 290
  - Drop Out: 50
  - Completely Cured: 180/290
  - Cure Rate (MI becoming Zero): 310/320
- Group B
  - Relapse: 30
  - Reaction (Type 2): 25

Conclusion: Addition of Oloxxacin & Sparfloxacin daily for first two months to routine MB MDT (adult) results in more effective treatment regimen in highly bacillary load cases of HD (LL)

**O-237**

**Presentation Time:** Thursday 19/09/2013 at 14:00 – 15:30

**Symposium Session:** Chemotherapy - Newer Drugs

**Presenter:** Flavia Lara

**EFFICACY OF STATINS IN THE CONTROL OF M. LEPRAE AND M. TUBERCULOSIS INFECTION.**

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Introduction: It was recently described that M. leprae is able to induce lipid body biogenesis in macrophage and Schwann cells, and that these corpules are recruited to the phagosome containing the mycobacterium. Furthermore, it was observed that inhibition of this recruitment significantly reduced the viability of intracellular M. leprae. Given these results we investigated the efficacy of drugs that inhibit cholesterol synthesis (statins) and their effects on intracellular survival of M. leprae, M. tuberculosis and M. bovis BCG pathogens.

Methods: Macrophage cultures infected not with viable M. leprae, M. bovis (BCG) or M. tuberculosis were treated with atorvastatin or simvastatin during 72 h. Analysis of the viability of mycobacteria was carried out by real-time PCR (M. leprae) and CFU counting (M. tuberculosis and M. bovis). BalbC mice were infected with M. leprae following Sheppard’s model and treated with atorvastatin during 6 months before bacillar count. Furthermore, the cytotoxicity of different treatments was checked by MTT assays and serum transaminase activity in cells and mice, respectively. Statistical analysis was performed using ANOVA test with Prism software.

Results: We observed a decrease in viability of mycobacteria after incubation with both statins. Atorvastatin had the highest effect against M. leprae and M. tuberculosis at 1mg/ml dose, while simvastatin showed better results against M. bovis BCG at the same dose. In Sheppard model we observed atorvastatin efficacy against M. leprae in a dose of 80mg/kg/week. Both drugs showed a synergistic effect when combined with rifampicin. The drugs do not interfere in the cellular viability or increase transaminase activity; on the other hand, they efficiently reduce cholesterol levels, in cells and animal serum.

Conclusion: Statins present bactericidal activity against M. leprae and M. tuberculosis in vitro and in vivo. Its association with multidrug therapy can bring benefits to patients of both diseases, and its efficacy against MDR M. tuberculosis and atypical mycobacterium strains are under investigation.

**O-238**

**Presentation Time:** Thursday 19/09/2013 at 14:00 – 15:30

**Symposium Session:** Chemotherapy - Newer Drugs

**Presenter:** Robert Gelber

**THE ACTIVITY OF SEVERAL NEWER ANTIMICROBIALS AGAINST LOGARITHMICALLY MULTIPLYING M. LEPRAE IN MICE**

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Introduction: Moxifloxacin, rifampicin, linezolid, and PA 824, alone and in combination, have been previously administered, as single doses and five times daily doses, to M. leprae infected mice during lag phase multiplication (dormancy) and were each found to have some bactericidal activity. Both moxifloxacin and gatifloxacin, both representative of a newer unique class of fluoroquinolones, Bmythoxyquinolones, have proved superior against M. tuberculosis in mice to other quinolones, and approximate the bactericidal activity of rifampicin.

Methods: The fluoroquinolones, ofloxacin, moxifloxacin and gatifloxacin (50 mg/kg, 150 mg/kg and 300 mg/kg) and the rifampicins (5 mg/kg, 10 mg/kg, and 20 mg/kg), rifampicin and rifapentine, were evaluated on five times weekly administration alone and in combination each at their lowest doses for bactericidal activity against M. leprae using the mouse footpad model during logarithmic multiplication. Linezolid (25 mg/kg, 50 mg/kg, and 100 mg/kg) and PA 824 (several doses between 3.2-100 mg/kg) were similarly evaluated alone and linezolid in combination with rifampicin (5 mg/kg, minocycline (0.01%), in diet) and ofloxacin (50 mg/kg). These present studies utilized the kinetic technique of Shepard. Untreated control mice and treated mice were infected with 5,000 M. leprae and treated from Day 60 to 150. Growth was considered to have occurred if <10 bacilli/footpad were found. Drugs were considered inactive on Day 150 if M. leprae growth occurred at the same rate as in untreated control mice, bacteriostatic if growth began immediately upon drug discontinuation, and bactericidal if growth of M. leprae was further delayed, at times up to nine months after the completion of therapy.

Results: The three fluoroquinolones and rifampicins were found alone and in combination to be bactericidal at all dosage schemes. PA 824 had no activity against M. leprae, while linezolid at a dose of 25 mg/kg was bacteriostatic, and progressively more bactericidal at doses of 50 mg/kg and 100 mg/kg. No antagonisms were detected between any drugs when used in combination, while the antimicrobial activity of all combinations of linezolid studied were additive.

Conclusion: Ofloxacin, moxifloxacin, gatifloxacin, rifapentine and linezolid were found bactericidal against rapidly multiplying M. leprae. Previously, we had found that ofloxacin 50 mg/kg daily was less effective than was found in this present study, thus limiting our ability to establish herein if equivalent doses of moxifloxacin and gatifloxacin were superior. PA 824 administered five times weekly at dosages between 3.2 mg/kg to 100 mg/kg was consistently inactive. Previously, it found PA 824 to be modestly bactericidal during “stationary phase” multiplication. Our results in rapidly multiplying M. leprae mimic those of Manjunatha et al. who found it inactive against murine leprosy, a result found in accord with their findings that M. leprae lacks the genes necessary to convert PA 824 to its active moiety.

In clinical trials moxifloxacin was profoundly bactericidal for M. leprae and matched in this respect only by rifampicin. The finding that rifampicins and moxifloxacin are not antagonist suggests for a future generation of MDT that combination has particular potential.
O-239
Presentation Time: Thursday 19/09/2013 at 14:00 – 15:30
Symposium Session: Chemotherapy - Newer Drugs
Presenter: Vivek Pai

MOXIFLOXACIN BASED REGIMENS IN LEPROSY – OBSERVATIONS ON OCCURRENCE OF REACTIONS AND BACTERIAL DECLINE

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Introduction: Clinical trials in leprosy using Moxifloxacin based regimens were reported for the first time in 2009 (Ganapati et al 2009). The fluoroquinolone Moxifloxacin has been shown to be a powerful bactericidal agent against M. leprae. It is a synthetic broad spectrum 8-methoxy-fluoroquinolone antibacterial agent. We now report further observations based on this regimen on a larger sample of patients.

Methods: The study was aimed to make observations on a selected sample of 224 patients with 47 patients smear positive (43 male and 4 female patients belonging to the age group of 10 to 67 years) and 177 patients (79 male and 98 female patients belonging to the age group of 16 to 70 years) in an ongoing clinical trial receiving Moxifloxacin 400mg, Rifampicin 600mg and Minocycline 200mg (MMR) at monthly intervals for 12 months. In the comprehensive clinical trial, there was a comparative group (MRMC) receiving Clofazimine to judge its anti-infective property in preventing reactions. This group received 300mg under supervision along with MRM followed by unsupervised doses of 50mg daily clofazimine. Patients available for analysis of reaction for a follow up period of 2years were selected. Though the sample of bacillated patients in MRM and MRMC groups is being increased the bacteriological status as measured by BI of all patients at 12th month and 24th month was assessed in both groups.

Results: It was observed that a high proportion of patients underwent reactions 15 (34.8%) in smear positive 47 patients of MRM group, 6 (6.9%) in 89 patients of PB group and 22 (24%) in 60 patients of MRM group of 16 to 70 years) in an ongoing clinical trial receiving Moxifloxacin 400mg, Rifampicin 600mg and Minocycline 200mg (MMR) at monthly intervals for 12 months. In the comprehensive clinical trial, there was a comparative group (MRMC) receiving Clofazimine to judge its anti-infective property in preventing reactions. This group received 300mg under supervision along with MRM followed by unsupervised doses of 50mg daily clofazimine. Patients available for analysis of reaction for a follow up period of 2years were selected. Though the sample of bacillated patients in MRM and MRMC groups is being increased the bacteriological status as measured by BI of all patients at 12th month and 24th month was assessed in both groups.

Conclusion: It can be established that a high proportion of patients undergoing reactions is 15 (34.8%) in smear positive 47 patients of MRM group, 6 (6.9%) in 89 patients of PB group and 22 (24%) in 60 patients of MRM group.

O-240
Presentation Time: Thursday 19/09/2013 at 14:00 – 15:30
Symposium Session: Human Rights and Advocacy
Presenter: San Arulanantham

ADDRESSING INEQUALITY AND EXCLUSION - PEOPLE AFFECTED BY LEPROSY’S OPINIONS AS TO WHAT SHOULD BE INCLUDED IN ANY POST MILLENNIUM DEVELOPMENT GOAL FRAMEWORK

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Introduction: The UN declaration on which the Millennium Development Goals (MDGs) were based upholds the principles of human dignity, equality and equity. However, although the declaration highlights the need to ensure the most vulnerable are included in the development process, the lack of specific reference to leprosy, neglected tropical diseases or disability has resulted in some of the world’s most marginalised people having limited access to development. With the MDGs coming to an end in 2015, and recognising that people affected by leprosy in most countries have still yet to be mainstreamed into development programmes, The Leprosy Mission (TLM) has committed to advocate for a post 2015 framework that addresses the priorities of people affected by leprosy. In order to ensure its advocacy effort is legitimate, there was a need to consult with people affected by leprosy in leprosy-endemic countries to identify their future development priorities.

Methods: TLM’s field staff undertook 95 group consultations which included 4,797 people affected by leprosy from across nine leprosy-endemic countries (Bangladesh, DR Congo, Ethiopia, India, Mozambique, Myanmar, Nepal, Niger, Nigeria). Focus group discussions were used to gather qualitative data representing the changes they had experienced over the last 10 years and their development priorities. Sampling of participants included purposive methods, as the study specifically targeted people affected by leprosy. In addition, convenience methods were used as the research targeted communities that field staff had planned to visit for other purposes, or out-patients departments at specialist leprosy hospitals where large numbers of people affected by leprosy were present. Records of the meetings were reviewed to identify common themes across groups in each country and then these findings were compared across the nine countries to identify the common development priorities.

O-241
Presentation Time: Thursday 19/09/2013 at 14:00 – 15:30
Symposium Session: Human Rights and Advocacy
Presenter: Mr. Jose Ramirez, Jr

LOVE AND LEPROSY: IMAGES OF PAIN AND/OR COMFORT

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1USA Coordinator, IDEA, Houston, United States

Introduction: The diagnosis of Hansen’s disease (HD) can immediately force images in the mind of those affected ans others impacted. Those impacted may include the immediate and extended family. Similar to the instant loading of videos and emails, a person who first hears the word leprosy is prone to quickly activate the brain to view only stereoptypic and negative images of persons affected by this illness. Two licensed social workers, one affected and one impacted, will discuss the challenges confronted by those newly diagnosed, as well as strategies for lessening the trauma of the diagnosis. The presentation will be via power point, examples ans discussion.

Methods: Based on personal and professional experiences, the two social workers will introduce a model that can be used by couples to lessen the pain of stigma when one or both are initially diagnosed with HD. This model is titled IMAGES. This model is the geographic/cultural differences that exist in the world of leprosy. However, with the appropriate language/nuances/changes this model can be implemented almost anywhere, e.g., use the word treatment instead of the word medication; family and faith instead of access; to identify the common development priorities.
both legal and social. Many people affected by leprosy have reported violation of their rights, including rights to food, education and employment. To help address discrimination against people affected by leprosy in India, The Leprosy Mission (TLM) developed a project focused on raising rights awareness and mobilising people affected by leprosy to challenge injustice. However, the project has faced many challenges whilst encouraging people affected by leprosy to embrace a rights-based approach to development. These experiences needed to be documented and analysed so that this learning can be used by organisations in planning and implementing Community Based Rehabilitation.

Methods: In order to provide qualitative data to inform project planning, “incidents of engagement” that highlighted the challenges staff were facing, when using a rights-based approach with people affected by leprosy, were documented. The tool of “learning reflection” was then used to discuss this qualitative data, to better understand the challenges faced by TLM staff and the communities themselves.

Results: The “incidents of engagement” approach revealed 17 challenges faced when implementing a rights-based approach. They are: 1) Fatalistic attitude of people affected by leprosy; 2) Self-stigma and lack of self-belief/self-confidence; 3) Culture of begging and lack of interest in rights issues; 4) Illiteracy and lack of education; 5) Lack of knowledge of their rights and entitlements; 6) Lack of understanding of government processes; 7) Lack of strong visionary leadership; 8) Lack of unity among leprosy colony residents; 9) Lack of willingness to accept leadership from outside their colonies; 10) Leaders pursuing their own interests, not motivated to serve their community; 11) Existing grassroots networks still charity-focused rather than rights-focused; 12) Difficulties in engaging with people affected by leprosy living outside the colonies; 13) Communities’ lack of faith in development workers; 14) Legislation changes seen irrelevant, people focused on survival; 15) General community have little understanding of leprosy-related human rights issues and therefore not engaged with the issue; 16) Lack of media interest; 17) Other NGOs working with people affected by leprosy encouraging a welfare approach.

Conclusion: Reducing stigma and discrimination will, no doubt, be a long process. However, recognition of the challenges faced by people and communities affected by leprosy and the NGOs working with them is the first step in the process of people affected by leprosy accessing their rights and entitlements. These 17 challenges in implementing a rights-based approach to development with people affected by leprosy need to be addressed by community development programmes, if people affected by leprosy are going to move from dependence on charity to being empowered to challenge injustice. Learning from reflection on the “incidents of engagement” provides insight not only into the challenges experienced but also on potential approaches for intervention.

O-243

Presentation Time: Thursday 19/09/2013 at 14:00 – 15:30
Symposium Session: Human Rights and Advocacy
Presenter: Ms Mioji Morimoto

CREATING AN INCLUSIVE SOCIETY

M. Morimoto 1, 2

1International Coordinator, IDEA, Seneca Falls, NY, United States
218th International Leprosy Congress • Hidden Challenges

Introduction: There are about 2,000 residents living at the 13 National Hansen’s Disease Sanatoria in Japan. Their average age is over 82. Most of them live lonely lives as they have no contact with their family, being isolated in the sanatorium until 1996. When they die, they will be buried in community cemeteries at the sanatoria. No newly diagnosed patients are being admitted now, and thus by 2020, the number of the residents at the National Hansen’s Disease Sanatoria is expected to decrease to 600. Following the lawsuit against the government in 1998 that charged serious human rights violations against people affected by Hansen’s disease in Japan, the Japanese government guaranteed that the lives of the residents would be protected until the last day of the last resident. However, their actions have proven otherwise. For example, they have tried combining some sanatoria, based on the fact that the number of residents was decreasing. This has caused great anxiety among the residents who are being forced to leave the place they regard as home.

Methods: Rather than accept the government’s actions, and learning from other countries such as Philippines and Thailand, Zen Ryo Kyo (the national network of residents of Hansen’s disease sanatoria) in collaboration with groups of plaintiffs, lawyers, and many other supporting organizations, approached the government. They argued that having the sanatoria open to anyone in the community was the best way to sustain the sanatoria in the community.

Results: The initiative by Zen Ryo Kyo to create an inclusive society, where the Hansen’s disease sanatoria can be used not only by the people affected by Hansen’s disease but also by people with other diseases, problems or special needs, resulted in a newly-enacted law providing solutions to problems faced by people who have had Hansen’s disease. In a step towards more inclusion, last year, pre-schools were set up at the sanatoria in Tokyo and in Kumamoto. This brought much happiness to the residents, as we had not been allowed to have children ourselves.

Conclusion: The abolition of the Leprosy Prevention Law did not solve all of our problems. For example, on the medical front, we are still facing serious problems. Reflecting the administrative and fiscal reform, doctors, nurses and care givers are in great shortage. The aged residents are protesting against the government and have publicly stated that they are ready to go on a hunger strike in order to maintain the quality of life until the very end of their lives. We have to continually protest injustice, organize ourselves to ensure our human rights, and use legal means when necessary to create real change, not just legislative change.

O-244

Presentation Time: Thursday 19/09/2013 at 14:00 – 15:30
Symposium Session: Human Rights and Advocacy
Presenter: Ms Anwei Law

AN EXPECTATION OF JUSTICE: 160 YEARS OF ADVOCACY AND RESISTANCE BY INDIVIDUALS DENIED THEIR HUMAN RIGHTS BECAUSE THEY HAD LEPROSY

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1International Coordinator, IDEA, Seneca Falls, NY, United States
218th International Leprosy Congress • Hidden Challenges

Introduction: Archival documents reveal that individuals whose lives have been challenged by leprosy have been advocating for their rights and resisting the erasure of their identities for at least 160 years. Historian Michelle Moran has observed that resistance by people with leprosy predates more well-known social movements aimed at “demoralizing medicine,” such as those associated with HIV/AIDS and breast cancer which have been largely viewed as a “distinctively late-twentieth-century phenomena.”

Methods: Research was conducted into correspondence, petitions, oral histories and published and unpublished accounts of individuals from several countries, including South Africa, the Hawaiian Kingdom, Japan, Swaziland, USA, Colombia and Brazil. This information was then analyzed in the context of the rights outlined in the Universal Declaration of Human Rights to gain a better understanding of the extent to which leprosy has been used as a justification for the denial of basic human rights.

Results: Records in the Capetown Archives show that as early as 1853, individuals sent to Robben Island protested being detained against their will. In the early 1890s, Kalaikuolau, a Native Hawaiian, and Frans Jacobs from South Africa, protested the separation of families, each saying that their marriage vows (the law of God) were greater than the isolation policies (the law of man). Research by Bill McCoy into letters written by Madawane Mazya from Swaziland shows how she conducted a strong, persuasive letter writing campaign in the 1930’s to members of the Government in which she objected to her relocation to South Africa and also insisted on the ability of people with leprosy to care for themselves. Individuals in Japan have a long history of individual and collective resistance against oppression. This has included hunger strikes such as that staged as part of the “Get Promin” movement. In the USA, efforts by Stanley Stein in the 1940’s resulted in the abolition of the law that denied people with leprosy the right to vote. In Colombia, women in Agua de Dios formed their own religious community when they were not allowed to join the existing religious order because they had leprosy. As a child, Cristiano Torres from Brazil distributed protest literature describing the situation he and others were forced to live in and continues to advocate against the prejudice, discrimination and loss of freedom experienced by people today. Members of the older generation in a number of countries are currently protesting plans to relocate them and close the places they have come to regard as home.

Conclusion: The Universal Declaration of Human Rights was adopted in 1948 to formally outline and protect the basic human rights and freedoms of the world’s citizens. These included the right to be free from: cruel, inhuman or degrading treatment; arbitrary arrest, detention or exile; arbitrary interference with privacy, family, home or correspondence; attacks upon a person’s honor and reputation; as well as the right to freedom of movement, nationality, home and family. A diagnosis of leprosy has often been used as justification for denying these rights, usually in the name of public health policies. However, human rights advocates from amongst those who had leprosy, many of whom promoted universal rights and freedoms long before the adoption of the Universal Declaration of Human Rights, have left a clear record that shows how isolation policies were often abused and hardships imposed that denied an individual’s rights, persisted long after the discovery of a cure, and continue into modern times.

O-245

Presentation Time: Thursday 19/09/2013 at 14:00 – 15:30
Symposium Session: Human Rights and Advocacy
Presenter: Ms Koli Nyarko

REUNITING FAMILIES IN GHANA – AN IMPORTANT STEP IN ENSURING HUMAN RIGHTS AND ELIMINATING STIGMA

K. Nyarko 1, 2

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218th International Leprosy Congress • Hidden Challenges

Introduction: The Universal Declaration of Human Rights, adopted in 1948, states that “The family is the natural and fundamental group unit of society and is entitled to protection by society and the State.” (Article 16) Countless numbers of people around the world have been deprived of their families due to isolation policies and the stigma associated with leprosy. Despite the fact that there is a cure for leprosy, thousands of people still live in isolated leprosy communities. The United Nations Guidelines for the Elimination of Discrimination Against Persons Affected by
Leprosy and Their Families, adopted in 2010, states that “States should, where possible, support the reunification of families separated in the past as a result of policies and practices relating to persons diagnosed with leprosy.” When discussions are held regarding the return of individuals to their homes, it is often said that either these individuals do not want to return home, fearing rejection by family and society, or that families will not accept them due to the stigma and because they are regarded as a burden. Activities in Ghana challenge these two ideas.

Methods: A concerted effort has been made in Ghana to educate the public through the media and other public education efforts. This has paved the way for more than 350 people to return to their homes and families. Members of IDEA Ghana have visited the home towns of people who have been living separated in leprosy camps for as long as 56 years. They visit the families and also the chief of the village in order to discuss the return of those who have been separated because they had leprosy. This is done in preparation for either having the family or chief come to get the person (in villages located close to the camps), or for a member of IDEA Ghana to accompany a person back home when distances are greater.

Results: More than 350 people who have lived in leprosy camps in Ghana for most of their lives have returned to their homes and families. In a number of cases, those who have returned home find that they are the oldest surviving member of their village and immediately become respected for their knowledge of its history. Others have been asked to serve as advisors to the chiefs of their village. Upon returning home in 2012, Victoria Sapon said: “As you know, I was in a leprosy camp when I was 16 years, but now I am 63 years old, so I have spent 47 years in the leprosy camp. Some years ago there was a lot of stigma in Ghana but now there is no more, that is why I said I will come back home. See the people around me because of my coming home!”

Atoo Kwamena returned home after living in a leprosy camp for 32 years. The chief of his village commented: “We are so happy to have Atoo Kwamena back. He is older than anybody in this village and there are a lot of things we need to learn from him. For him to come home is a blessing.” There are currently about 125 people of varying ages waiting to return home. Some commented: “We are so happy to have Atoo Kwamena back. He is older than anybody in this village and also the chief of the village in order to discuss the return of those who have been separated because they had leprosy. This is done in preparation for either having the family or chief come to get the person (in villages located close to the camps), or for a member of IDEA Ghana to accompany a person back home when distances are greater.

Conclusion: These results suggest that MΦc cells are more susceptible to phenotype changes after apoptotic stimuli when compared to MΦ2 cells. Based on these data, we may also suggest that in paucibacillary patients, efferocytosis contribute to mycobacterial persistence instead of the presence of an effective cellular immune response by maintaining an MΦ2 phenotype at lower levels in the skin lesions.
**O-250**

**Presentation Time:** Thursday 19/09/2013 at 14:00 – 15:30

**Symposium Session:** Immunology 3

**Presentation:** ENROLLMENT OF IRON IN THE IMMUNOPATHOGENESIS OF LEPROMATOUS LEPROSY

**Presenter:** Mayara Barbosa

**Methods:** Skin biopsies of lepromatous patients classified by the Ridley-Jopling method were analyzed by optical microscopy following to stains with Prussian Blue, Wade staining and immunohistochemical analysis of ferritin light chain (FTL, CD163, heme oxygenase (HO-1), hemoglobin (Hb), haptoglobin (Hp) and transferrin receptor-1 (TfR1). The gene expression of TfR1 and Ferroportin-1 (Fpn-1) in skin lesions of leprosy patients were evaluated by real time PCR. Peripherial blood mononuclear cells (PBMC) or monocytes from health donors were stimulated with FeSO4 (100 µM), Hemin (10 µM), CoPP (10 µM) and/or M. leprae (10:1) for 24 hours. The supernatants were measured to IL-1β, IL-4, IL-6, IL-10, IL-12p70, IL-17, IL-23, IFN-γ, TNF-α and TGF-β by ELISA. In addition, monocytes stimulated with FeSO4 were stained by flow cytometry to intracellular indoleamine 2,3-dioxygenase (IDO) and IDO activity also was evaluated in culture supernatants by high-performance liquid chromatography.

**Results:** We observed that skin biopsies from lepromatous patients exhibit a higher expression of proteins related to iron uptake and metabolism, as well as increased iron deposition in the form of ferritin and hemosiderin in foamy macrophages, where the bacilli are located. Analysis of gene expression by real time PCR demonstrated that TfR1 expression was increased in lepromatous lesion cells when compared with tuberculoid ones. Fpn-1, in contrast, was reduced in lepromatous cells, suggesting that increased iron storages in lepromatous macrophages were due to low iron exportation. Antioxidants can increase Fpn-1 in infected macrophages. We tested the effect of CoPP (HO-1 inducer) on cytokine production in M. lepra-stimulated monocytes. We observed that in M. lepra-stimulated cells CoPP increased IL-1β. In addition, CoPP also increased IL-6 levels independently of M. lepra stimulation. Cultures of monocytes stimulated with hemin at 10 mM and M. leprae increased IL-6 levels when compared to controls. We also tested the effect of free iron (FeSO4) treatment in healthy donors cells stimulated with M. leprae. The addition of FeSO4 was able to modulate the cytokine production, increasing the secretion of IL-12p70 and IL-10 in monocytes, and IL-6 in cultures of PBMC stimulated with M. leprae. The addition of exogenous iron, as FeSO4 treatment, was also able to reduce the expression and activity of indoleamine 2,3-dioxygenase induced by M. leprae in monocytes of healthy donors.

**Conclusion:** Our results demonstrated that in lepromatous macrophage iron presents a dual role, creating a favorable environment for the mycobacteria or increasing pro-inflammatory cytokines that may contribute to activation of antimicrobial pathways in macrophages.

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**O-249**

**Presentation Time:** Thursday 19/09/2013 at 14:00 – 15:30

**Symposium Session:** Immunology 3

**Presentation:** INSULIN-LIKE GROWTH FACTOR-I IN LEPROSY: POSSIBLE ROLE ON MACROPHAGE DEACTIVATION AND INTRACELLULAR MYCOBACTERIUM LEPRAE PERSISTENCE

**Presenter:** Luciana Rodrigues

**Introduction:** Lepromatous skin lesions are characterized by the presence of highly infected foamy macrophages. Mycobacterium leprae, an obligate intracellular pathogen, is able to subvert macrophage microbicidal mechanisms and replicate within these cells. However, the molecular mechanisms involved in this deactivation are not completely understood. In a previous study, we have shown that M. leprae induces insulin-like growth factor I (IGF-I), a hormone with anti-inflammatory and anti-apoptotic activities, in human Schwann cells as a strategy to maintain the host cell survival. In the present work, we investigated the IGF-I expression in macrophages and its potential involvement on macrophage deactivation and mycobacterial survival.

**Methods:** IGF-I expression was evaluated in skin biopsies from tuberculoid (BT) and lepromatous (LL) patients by quantitative RT-PCR and immunohistochemical analysis. Human monocyte-derived macrophages (MOMA) or murine RAW 264.7 lineage were infected with M. leprae in order to evaluate IGF-I induction. The effect of IGF-I in mycobacterium-induced inducible nitric oxide synthases (iNOS) expression and nitric oxide (NO) generation was also investigated and bacterial survival was monitored by colony-forming unit (CFU) or Live/Dead bacterial viability kit.

**Results:** Our data have shown IGF-I mRNA up-regulation and abundant IGF-I protein expression in LL skin lesions when compared to BT lesions. Subsequent in vitro experiments have confirmed that M. leprae is able to induce IGF-I expression and production in human and murine macrophages. Exogenous IGF-I added to macrophages was able to partially block the effect of M. leprae or NO production induced by Mycobacterium smegmatis and Mycobacterium bovis BCG. M. leprae was unable to induce iNOS and NO production in macrophages above the constitutive levels. However, the addition of neutralizing antibody against IGF-I type 1 receptor (IGF-IIR) was able to reduce the capacity of M. leprae to generate reactive nitrogen species in murine macrophages. The same result was obtained using RAW 264.7 macrophages transiently transfected with an iNOS promoter luciferase construct. Finally, we observed that IGF-I added to murine macrophages cultures contributed to intracellular survival of M. smegmatis, M. bovis BCG and M. leprae.

**Conclusion:** Our results suggest that IGF-I induced by M. leprae in macrophages may contribute to macrophage deactivation by down-regulating the host innate response during infection. Currently, we are investigating the potential mechanisms involved in the IGF-I-induced macrophage deactivation.
Agra were included in this study. Anti-MBP antibodies were measured in sera of LP and HC by ELSA. Cross-reactive areas of mycobacteria and MBP were identified by western blot (WB) using anti-MBP rabbit sera or anti-M. leprae rabbit sera. These cross-reactive regions were further characterized by 2D gel electrophoresis and WB. Cross-reactive spots were identified by MALDI-TOF/TOF. B cell epitopes were predicted by BCPRED Server 1.0 and aligned by Clustal W server. 3-dimensional structure of mimicking protein/s of M. leprae and MBP was modeled by CPH server and all the similar B cell epitopes were highlighted to find out whether, these epitopes are on the surface of the protein. Imbedded strains of BALB/c mice were subcutaneously inoculated with MLSA and sensitized immune cells of these mice were adoptively transferred to naïve mice.

Results: Level of anti-MBP antibodies was significantly higher in leprosy patients across the spectrum compared to HC. The presence of cross-reactive region of MBP reacting to anti-M. leprae rabbit sera was found to be ~30kDa, pl value of ~6.0 while of M. leprae antigen was at 51kDa, pl ~5.5 and 30kDa, and pl ~6.0. It was found that myelin A1 protein and 50S ribosomal protein L2 and Lysyl-tRNA synthetase of M. leprae are cross-reactive proteins. It was observed that 2 B cell epitopes of both the proteins were similar which were mimicking. It was very interesting to find out that autoimmune response raised in mice is adoptively transferred to naïve mice.

Conclusion: Our findings suggested that myelin A1 protein and 50S ribosomal protein, Lysyl-tRNA synthetase of M. leprae are mimicking proteins and 2 B cell epitopes of both the protein may be responsible for the autoantibody production in leprosy patients. Autoimmune response is adoptively transferable to naïve mice by sensitized immune cells.

ROLE OF SCHOOL CHILDREN IN LEPROSY CONTROL

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Introduction: Leprosy control can be achieved by strengthening the prevention of disability services to people affected by leprosy. This can be made possible by empowering school children and other members of the community in early identification of new cases rather than depending entirely on health workers. Early identification, diagnosis and treatment before leprosy suspects have developed disabilities enables leprosy patients to be cured without disability and hence can have a life to their fullest potential in the community.

Methods: Methodologies used in spreading the leprosy education and awareness to school children and other members of the community include a robust and inclusive array of activities. Such as, social marketing through drama groups, school clubs, peer education lecture sessions in schools and village sensitization meetings by the use of village prevention of disabilities (POD) committees. Drama groups and POD committees include former leprosy patients. Every person involved in this program works on a voluntary. All persons involved in this program works and are expected to continue working on voluntary basis.

Results: Over a one year period, 60 POD committee members have been working as volunteers and 55 villages and 65 schools were reached. Leprosy knowledge was spread to 36,157 adults and 38,167 school children. 174 suspects self-reported to health facilities and 30 were confirmed by leprosy experts as new leprosy cases and put on treatment. 15 self-care groups of members ranging from 6 to 10 were formed. People Affected by Leprosy have shown a positive response in the proper use of foot wear.

Conclusion: Spreading leprosy knowledge to school children and members of the community has proved to be a vital methodology in controlling leprosy and hence case finding has scaled up. As more and more people become knowledgeable in leprosy we can see an increase in self-reporting of those suspected with leprosy. It is of no doubt that when school children and other members of the community are empowered in suspecting leprosy we can move more easily towards eliminating the disease.

ROLE OF CONTACT SURVEY AND RING SURVEY IN DETECTING NEW CASES OF LEPROSY IN THE PRESENT SCENARIO

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Introduction: The leprosy situation in India is passing through an important transition phase from a high burden country to a low burden country, from a partial vertical programme to a more integrated one; from active case finding to voluntary reporting. Even though India has achieved the leprosy elimination target it is doubtful whether all the leprosy cases are being diagnosed. This study aims to find the number of previously unrecognized leprosy cases that can be identified by using contact survey and ring survey.

Methods: The Schieffelin Institute of Health Research and Leprosy Centre, Karijini provides care for persons affected by Leprosy in four blocks of Vellore district- Kalpati, K V Kuppam, Gudiyatham and Pernambul. The overall population of Vellore district is 21,452. All new cases detected by voluntary reporting for five years from 2008-2012 all the four blocks were listed out for the contact survey and ring survey. Contact survey-The household contacts of these index cases were enumerated and senior paramedical staff would then visit each of their houses and examine the households for leprosy. Those who were suspected to have leprosy were referred to the base hospital for confirmation.

Ring survey-25 houses around the index case were listed and their inhabitants were enumerated. These households would be visited by the paramedical workers and examined for leprosy. Suspect cases were referred to the base hospital for confirmation of diagnosis.

Results: Contact Survey: A total number of 205 index cases had been registered in the past five years from four blocks in Vellore district, out of which 177 cases (86.3%) were taken up for contact survey. The number of persons enumerated for the contact survey was 681, the number of contacts examined was 642 (94.2%). The total numbers of cases identified by contact survey was 11 (6.2% of the index cases), of which 6 cases were Multibacillary leprosy (MB Rate: 54.5%).
S. A. Hadi 1, B. Ahmed 2,*, S. U. Ahmed 3, A. Mong 4, D. A. M. Bangali 5, S. Hossain 6
1Ex. Deputy Program Manager, MBCD & LINE DIRECTOR TB-LEPROSY CONTROL PROGRAMME, NATIONAL LEPROSY ELIMINATION PROGRAMME, (NLEP), DIRECTORATE GENERAL OF HEALTH SERVICES, 2Director, Communicable Disease Control (CDC), Director General of Health Services, 3Deputy Program Manager, MBCD & LINE DIRECTOR TB-LEPROSY CONTROL PROGRAMME, NATIONAL LEPROSY ELIMINATION PROGRAMME, (NLEP), DIRECTORATE GENERAL OF HEALTH SERVICES, 4Country Director, Lepra, Bangladesh, 5NPO (VBD & Leprosy, WHO, 6Associate Scientist, ICDDR,B, DHAKA, Bangladesh

Introduction: Bangladesh remained as the fourth highest leprosy burden country in the world before adoption of the 1991 World Health Assembly resolution to eliminate leprosy. The country’s success was due to the operational classification; disability grade; and length of time of close association with the index case. Prevalence analysis was done using logistic regression to obtain the odds ratio (OR) and Incidence analysis was performed by Poisson regression to obtain relative risks (RR). Multivariate analyses were performed using a robust estimation method due to the cluster of contacts related to each index case. The level of statistical significance was 5%.

Results: In the prevalence analysis, close kinship showed a significant association, there was no significant association between prevalence and sibling (OR=2.75, 95%CI=1.66-4.57) and offspring (OR=2.00, 95%CI=0.22 0.41). Moreover, the categories uncle, nephew, cousin, grandparent, and grandchild (OR=1.70, 95%CI=0.98 2.94); parents (OR=1.69, 95%CI=0.97 2.96) have no statistical significance as did spouse, boyfriend/girlfriend, and bride/groom (OR=1.25, 95%CI=0.74 2.11). Factors associated with the prevalence also included socio-economic factors (schooling of up to 4 years) and duration of exposure to the bacillus (close proximity to the index case for more than five years). While in the incidence, once initiated treatment of the index case, these factors have lost their significance and index case BI and BCG protection have greater impact on the risk of illness. In the incidence analysis a variety of different significant risks were found for all categories of kinship: parents (RR=10.93, 95%CI=3.48 34.27); spouse, boyfriend/girlfriend, and bride/groom (RR=7.53, 95%CI=2.51 22.57); sibling (RR = 7.03, 95%CI = 4.21-20.46); offspring (RR=5.34, 95%CI = 1.74-16.38); and uncle, nephew, cousin, grandparent, and grandchild (RR = 3.71, 95%CI = 1.24-11.06).

Conclusion: A correlation with leprosy in both consanguineous and non-consanguineous contacts was observed, which mitigates the ability to fully clarify the issues of genetic susceptibility and physical exposure. The results suggested that both these issues play an important role in the epidemiology of leprosy. But, due to the complexity of factors involved in the disease, other analyses of its development are needed.

O-256

Presentation Time: Thursday 19/09/2013 at 14:00 – 15:30
Symposium Session: Innovative Approaches
Presenter: Dr. Jolida Nery et al

EVALUATION THE IMPACT OF THE CONDITIONAL CASH TRANSFER PROGRAM “BOLSAS FAMILIA” ON THE DETECTION RATE OF LEPROSY IN BRAZIL

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Introduction: Social determinants can affect the transmission of leprosy and unfavorable socioeconomic conditions are considered risk factors for this neglected disease. Little is known about the effectiveness of welfare policies, such as the conditional cash transfer program “Bolsa Família” (BF) in Brazil, on the reduction of poverty related diseases such as leprosy. Objective: To evaluate the impact of the BF on the detection rate of leprosy in Brazil.

Methods: We conducted a longitudinal ecological study in the period 2004 - 2011, with the Brazilian municipalities as units of analysis. Data were obtained from national databases with information about socio - demographic conditions and morbidity from leprosy.
independent variable was the BFP coverage of the poor eligible individuals in the municipality and the outcome was the detection rate of leprosy. The covariates selected were: municipal coverage of the Family Health Program (FHP), the main primary health care program of the country, percent of the population younger than 15 years, average income per capita, illiteracy rate, unemployment rate, urbanization rate and average number of residents per household. We used fixed-effects negative binomial model for panel data, crude and adjusted for the covariates, and explored these associations using continuous and categorized variables. Analyses were performed using stata version 10.

Results: A total of 5,483 municipalities were included in the totaling 43,864 observations during the considered years. During the period under study, there was an increase in the coverage of BFP and FHP, in the average per capita income and urbanization rate. The detection rate of leprosy was decreasing, as the mean percentage of under 15 years, the illiteracy rate, the unemployment rate and the average number of residents per household. Preliminary results indicate that municipalities with higher BFP coverage has statistically significant reduction in the detection rate of leprosy in crude models (BFP coverage higher 70%; RR=0.74 95% CI = 0.71–0.78) and adjusted for selected covariates (BFP coverage higher 70%; RR=0.80 95% CI = 0.77 – 0.84).

Conclusion: Preliminary results suggest a positive impact of Bolsa Familia Program in the reduction of the incidence of leprosy in the period 2004-2011.

O-257
Presentation Time: Thursday 19/09/2013 at 14:00 – 15:30
Symposium Session: Community Based Rehabilitation
Presenter: Pim Kuipers

BENCH TO BASTI: A FRAMEWORK FOR TRANSLATIONAL RESEARCH IN LEPROSY

P. Kuipers 1,*, P. S. Rao 1, M. S. Raju 1, A. John 1, L. P. Sabuni 1
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Results:

Methodologically, the proposed sequential research programme includes traditional and participatory strategies, and culminates in a participatory implementation of findings. The proposed programme is characterised by exploring intervention-related, adopter and stakeholder-related, as well as contextual dimensions of knowledge translation. It also draws from complexity theory to identify barriers and enablers to translation. Relevant aspects of the Ottawa Model of Research Utilisation and complexity theory are described. Methodologically, the proposed sequential research programme includes traditional and participatory strategies, and culminates in a participatory implementation of findings. The proposed programme is characterised by exploring intervention-related, adopter and stakeholder-related, as well as contextual dimensions of knowledge translation. It also draws from complexity theory and explores processes and consequences of implementation, localised responses and actions, incentives, psychosocial linkages and the roles of key individuals and institutions in the translation of leprosy research into community practice.

Conclusion:

Methods:

Results: Anticipated results of the proposed programme are outlined

Conclusions:

Recognition of the complex, multifaceted and often ambiguous reality of translating leprosy research into community practice, the collaborative project will draw evidence from multiple and diverse sources, focus on negotiation and action, and will foster negotiated understandings.

O-258
Presentation Time: Thursday 19/09/2013 at 14:00 – 15:30
Symposium Session: Community Based Rehabilitation
Presenter: Shirish Shegaonkar

IMPACT OF COMMUNITY BASED INTERVENTIONS ON IMPROVING THE QUALITY OF LIFE OF PEOPLE AFFlicted BY LEPROSY AND GENERAL DISABILITY.

S. D. Shegaonkar 1,*, S. J. Katti 1
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Introduction:

The Choice, Dignity & Integration (CDI) project was initiated in 2008 in four blocks of Belgaum District (Saundatti, Raibag, Hukeri and Gokak), Karnataka, India. This project focuses on poverty reduction and facilitates the social integration of people affected by leprosy, general disabilities, leprosy (although illegal), the devadasi custom has been in place for centuries and involves dedicating young girls at the temple so they are able to ‘provide sexual services’ to the men of their community. Belgaum District in the north of Karnataka, India has been a traditional home of the devadasi practice, and marginalized people into mainstream society. The project is based on a social model of de-ability and explores the use of Self Help Groups as a model of getting disadvantaged people to work together to advance both economically as well as socially. The

Conclusion:

The SHGs in the project constitute a platform that not only plan, organize, implement and evaluate the economic programs of its members, but also promote sustainable Social, Health & Educational development of the every member in the group. The study aims at highlighting the impact of Community Based interventions on improving the quality of life of people affected by leprosy and general disability.

Methods:

Results: The study shows that 80% of those affected with leprosy have increased independence in daily life through additional earning from Community Based rehabilitation (CBR) Programmes and 65% demonstrate an increase in their ability to meet common needs (Health, Children’s Education etc). 80% people affected with leprosy have reported increased social acceptance enjoying community facilities.

Conclusion: Community Based Rehabilitation is an effective intervention to increase community participation & social acceptance of leprosy affected. It is instrumental in improving the quality of life of those affected by leprosy by having positive impact on psychological well-being, interpersonal relationships, personal development, empowerment, physical and material well-being and access to rights for people affected by leprosy and general disabilities.

O-259
Presentation Time: Thursday 19/09/2013 at 14:00 – 15:30
Symposium Session: Community Based Rehabilitation
Presenter: Shivasankar Mugdalabatta

LONG TERM IMPACT OF SOCIO ECONOMIC ASSISTANCE TO IMPROVE THE LIVELIHOOD OF PERSONS AFFECTED BY LEPROSY IN INDIA

S. K. Muthusamy 1,*, S. Mugdalabatta 1
1Damien Foundation India Trust, Chennai, India

Introduction:

Methods:

Results:

Conclusion:

Results: We have contacted 315 beneficiaries supported in 2008-10. Among them 266 (84.4%) are members.

Methods: Damien Foundation India has conducted a cross sectional survey using a semi-structured interview schedule to study the socio demographic profile of the beneficiaries, impact of the socio economic support and the socio economic status of the beneficiaries supported in the year 2007. The support was provided in the form of livestock like cow or goats and self employment assistance. The aim of this study is to assess the long term impact of the socio economic assistance in improving the livelihood of the affected people.

Methods: Damien Foundation India has conducted a cross sectional survey using a semi-structured interview schedule to study the socio demographic profile of the beneficiaries, impact of the socio economic support and the socio economic status of the beneficiaries supported in the year 2007. The support was provided in the form of livestock like cow or goats and self employment assistance. The aim of this study is to assess the long term impact of the socio economic assistance in improving the livelihood of the affected people.

Results: We have contacted 315 beneficiaries supported in 2008-10. Among them 266 (84.4%) persons are available for the interview, 37 (11.7%) died and remaining migrated or not traceable. The mean age of the beneficiaries is 52 years and 81% of them are above 40 years. Support was provided to 121 (38%) women. Around 55% of beneficiaries are from socially deprived groups. Majority of them are illiterate (71%), has own house (89.5%) and do not own land (69%). Around 10% of the beneficiaries are living in leprosy colonies. Around 50% of the beneficiaries receive disability or old age or widows pension from government. Beneficiaries were supported with live stock like cow/buffalo (20.5%), goat/sheep (48%) and other self employment (31%). Among those received livestock 10% has died. The program has long term added value among 71% of the beneficiaries in improving their livelihood option. The support provided in the form of goats and beneficiaries from leprosy colony was found to be significantly associated with poor outcomes.

Conclusion: The program has long term added value to improve the livelihood options of persons affected by leprosy.
Presentations

O-260

Presentation Time: Thursday 19/09/2013 at 14:00 – 15:30
Symposium Session: Community Based Rehabilitation
Presenter: Mr Bob Bowers

ULTRA POVERTY ASSESSMENT AND INTERVENTIONS AMONG PEOPLE WITH LEPROSY RELATED DISABILITIES IN NORTH WEST BANGLADESH

B. Bowers 1, 2, P. Kuipers 3, S. Singh 4

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Introduction: The commonly used World Bank definition of extreme poverty (1 USD per capita per day) seems unimaginably low to those from more developed nations, while being all too believable to many in less developed regions. Despite decades of experience and planning, few interventions have effectively targeted those in extreme poverty, and even fewer have adequately targeted those well beneath this threshold (the ultra-poor), in part, due to definitional and assessment difficulties. This presentation will operationally define ultra-poverty from an energy intake perspective, which is market flexible. Recognizing that people affected by leprosy are disproportionately represented among the ultra-poor, a survey and poverty alleviation initiative with people with leprosy related disabilities was conducted. The initiative sought to prepare people living in ultra-poverty to more fully engage in a group based Community Based Rehabilitation Project.

Methods: The Leprosy Mission surveyed 2100 people with leprosy related disabilities in North-west Bangladesh over the past 4 years using the energy intake criterion as the entry point to a unique participatory poverty alleviation project. Individual plans were developed with each person identified as subsisting under the ultra-poverty line. Tailored poverty interventions were implemented and reassessed annually.

Results: Results from this ongoing work show a significant number of people living under the ultra-poverty line. Data from participants in the study, including education level, land holdings and sanitation are presented with poverty data to provide an overview of the lives of people affected by leprosy who are ultra-poor. Initial results indicate that the proportion of people now living above the ultra-poverty line after involvement in the project is significant.

Conclusion: Understanding and addressing poverty and ultra-poverty in a relevant and effective manner is a hidden challenge for organizations working with people with leprosy related disabilities. This study which identified a considerable number of people living below the ultra-poverty line in north-west Bangladesh should encourage others to similarly assess both extreme poverty and ultra-poverty, in order to more effectively target interventions.

O-261

Presentation Time: Thursday 19/09/2013 at 14:00 – 15:30
Symposium Session: Community Based Rehabilitation
Presenter: Mr Bob Bowers

UNEXPECTED FINDINGS IN A STUDY OF PARTICIPATION AND STIGMA: COMPARING PERSPECTIVES OF PEOPLE WITH LEPROSY AND OTHER DISABILITIES WITH PERSPECTIVES OF COMMUNITY MEMBERS

B. Bowers 1, 2, P. Kuipers 1, P. Dorsett 3

1School of Human Services and Social Work, Griffith Health Institute, Griffith University, Meadowbrook, 4131, Australia, 2The Leprosy Mission Int’l, Bangladesh, Nolphamani, Bangladesh, 3Population and Social Health Programme, Griffith University, Meadowbrook, 4131, Australia

Introduction: One of the major constraining factors for people affected by leprosy is the social stigma that often accompanies leprosy. The International Classification of Functioning, Disability and Health (ICF) describes disability as an impairment, activity limitation, or participation restriction. Participation restrictions can be due to physical or social barriers or social barriers. Thus the stigma alone can be seen as a disabling factor. Social barriers to participation can be hidden but very powerful, including negative attitudes, beliefs and stigma from others. It is also recognized that some people also experience self-stigma. They may withdraw themselves in fear of what they anticipate.

Methods: The P scale was administered to over 1300 people who are current members of the Leprosy mission. The P scale was a commonly used measure of participation restrictions among people with leprosy based on the perspective of the person with the disability. Those who had leprosy were also given the SALSA, a measure of activity limitations. In addition, a community stigma assessment tool originally developed for research with people with HIV/AIDS was modified to assess leprosy stigma. Community members, without leprosy or disabilities matched for geographical location were selected using a GIS program, and asked to complete the community stigma assessment.

Results: Initial analyses of P-Scale scores yielded surprisingly low levels of perceived stigma among people affected by leprosy. Details of scores and subscale scores for study populations are provided. Subsequent analyses were conducted to explore this apparent anomaly in the following ways. Comparison of P-Scale scores with SALSA scores and socioeconomic variables. Comparison of P-Scale assessments of stigma with community perspectives of stigma. Comparison of participants scores across sites.

Conclusion: Perceived and projected stigma and its effect on participation is complex. Based on findings, recommendations are made regarding the incorporation of perceived and projected stigma in community based research with people affected by leprosy.
Efficacy of Steroid and Physiotherapy in Early Reported Lagophthalmos

K. M. Kamble 1, *, S. V. R. Gitte 1

Introduction: Leprosy is a chronic infectious disease that involves skin and peripheral nerves resulting in to disability and deformities. Lagophthalmos is one of the well-known complications of leprosy due to involvement of the facial nerve. About 15-20% of the leprosy affected individuals develop lagophthalmos. In the early stages, lagophthalmos is treated like any other case of neuritis with steroids. The objective is to study the role of early intervention with steroid and simultaneous physical therapy in early reported lagophthalmos at tertiary referral institute under Disability Prevention and Medical Rehabilitation (DPMR) programme.

Methods: During April 2009 to March 2011, 33 patients reported with lagophthalmos. These patients were examined clinically and details were noted in pretested Performa. The standard dosages of the steroids were given to patients as per guidelines. Lid gaps on direct gaze and with both gentle and forced closure were assessed using standard measuring technique by a physiotherapist. During follow-up period the patients were imparted active and passive physiotherapy and any change in the lid gap was recorded. Data were analysed and appropriate test of significance was applied.

Results: A total of 1190 patients were diagnosed as new case of leprosy of which, 816 (42.72%) were MB cases, while 1029 (57.28%) were PB cases. 1249 (65.40%) were males while 661 (34.60%) were females. Of the total newly diagnosed cases, the proportion of cases with lagophthalmos was 2.40% (33). These 33 patients visited the institute within six months of the appearance of symptoms. There were 27 (81.81%) males and 6 (18.18%) females. The male to female ratio was 4.5:1. Out of total lagophthalmos patients, 29 (87.87%) were receiving MDT and 04 (12.12%) had been released from treatment (RFT). Only 5 (15.15%) lagophthalmos cases were from the PB category, while rest i.e. 28 (84.84%) were from MB category. In MB cases, 16 (48.48%) patients had skin lesions over the face and also on other parts of the body. Out of 33 patients only one patient had facial palsy. Twenty patients reported within 3 months of appearance of the signs and symptoms while 13 had reported between 3 and 6 months.

Conclusion: With the use of the steroid and regular physiotherapy early detected lagophthalmos in initial stages shows significant improvement in the lid gap reduction. Early detection of the upper eye lid muscle weakness by asking every patient during each visit will definitely prevent development of lagophthalmos. Adequate management of lagophthalmos will prevent complications like exposure keratitis, corneal ulcer and blindness.

Incident Ocular Complications are Associated with Hand and Feet Deformities in Multi-Bacillary Leprosy Patients

E. Daniel 1, 2, S. Rao 3, 4, P. Courtright 1

Introduction: Disabilities associated with leprosy continue to be a major challenge facing leprosy control efforts worldwide. Depending upon the location and the quality of data collection, deformities in newly diagnosed multi-bacillary leprosy patients have been reported to be in the range of 18% to 34%. Vision threatening ocular complications can lead to blindness with catastrophic results in already physically disabled patients.

Methods: Deformities of hands and feet of 301 newly diagnosed multi-bacillary patients were graded at enrollment according to the WHO classification as no deformity, grade 1 deformity and grade 2 deformities. These patients were followed up with detailed ocular examinations every six months during 2 years of multi-drug therapy and the following 5 year period. Incident ocular complications that included lagophthalmos, corneal opacities, uveitis, iris atrophy and cataract, were estimated using the Cox proportional hazards model. Adjusted hazard ratios (aHR) with 95% Confidence Intervals (CI) were generated. The association of these incident ocular complications with several candidate risk factors including limb deformities at baseline was investigated.

Results: At baseline no limb deformities were observed in 35.2% of the 301 patients, 146 (48.5%) had either grade 1 or grade 2 deformity in one or more limbs, 49 (16.3%) had either grade 1 or grade 2 deformity in all the limbs, 37 (24.3%) had grade 1 deformity in all the limbs while 9 patients (3%) had grade 2 deformity in all the limbs. During MDT, lagophthalmos (aHR12.84 95% CI 1.32, 124.60 p=0.028), uveal involvement (aHR 5.54 95% CI 1.20, 25.68 p=0.029) and potentially blinding leprosy related ocular problems (PBLROP) (aHR4.74 95% CI 1.11, 20.31 p=0.036) were associated with grade 2 deformity in all limbs. After MDT, corneal opacities (aHR=1.86, 95% CI 1.15, 3.00) and uveal involvement (aHR=3.03, 95% CI 1.08, 8.53) and PBLROP (aHR 3.20 95% CI 0.98, 10.42 p=0.054) were associated with grade 2 deformity.

Conclusion: Multi-bacillary patients with severe hands and feet deformities at baseline are at a higher risk for developing potentially blinding ocular complications, notably corneal opacities and uveal involvement, during their MDT and after completion of the MDT. Patients with multiple grade 2 deformity are particularly at risk and need to be followed up with ocular examinations on a regular basis.
**P-304**

**Presentation Time:** Thursday 19/09/2013 at 10:30 – 10:40  
**Abstract Topic Name:** Surgical Rehabilitation  
**Presentation Screen Number:** 1  
**Presenter:** J.A. Garbino

**PROPOSAL FOR A PROSPECTIVE, RANDOMIZED TRIAL TO DETERMINE THE ROLE OF NERVE DECOMPRESSION IN LEPROSY NEUROPATHY**

M. Virmond 1, J. A. Garbino 2, M. Cury Filho 1, S. N. D. Almeida 1, W. F. D. Dalaima 1, M. T. Torquato 1

1Rehabilitation Division, 2Dermatology Division, ILSL, Bauru, Brazil

**Introduction:** Leprosy patients may present damage to nerve trunks leading to deformities. The pathophysiology of this neuropathy includes edema, fibrosis with enlargement of the nerve. There may be also external compression nerve leading to ischemia and loss of function. In spite of many publications on nerve surgery it is still not clear whether surgical decompression alone or combined with corticosteroids is better than corticosteroids alone. Therefore, this proposal to conduct a prospective, randomized trial to determine the value of surgical nerve decompression in leprosy neuropathy in association with corticosteroids treatment.

**Methods:** Patients presenting nerve function impairment is started on standard prednisone and limb splinting. If after 4 weeks there is no improvement or worsening of nerve function, the case is randomized to a Clinical Group (prednisone) or a Surgical Group (prednisone plus surgical decompression). Nerve function testing will be done until 5 years and include sensory test, voluntary muscle testing, a VAS for pain and nerve conduction velocity.

**Results:** So far 131 cases have been assessed. Only thirty-six cases were included for steroid treatment. Fifteen cases with acute neuritis were excluded due to Diabetes and hypothyrodism, Sjogren Disease, type 2 reaction and DVT and 80 did not showed acute neuritis. These 36 cases represented 49 nerves that were randomized. One case with two nerves was lost to and, two cases presented Diabetes and one hypothyrodism after randomization and were excluded, representing five nerves. The final total was 44 nerves. Out of them 27 were at random allotted to surgical group and 17 to clinical group. Major problem in follow up is the difficulty retrieval of cases for assessment due to economic restriction access. NCV has been considered the most sensible test for assessing the evolution of the nerve function in the pre and post randomization period.

**Conclusion:** Although difficult to implement, a randomized trial to explore the role of surgical decompression in leprosy related neuritis is important. So far the present study has proved to be feasible.

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**P-305**

**Presentation Time:** Thursday 19/09/2013 at 10:40 – 10:50  
**Abstract Topic Name:** Surgical Rehabilitation  
**Presentation Screen Number:** 1  
**Presenter:** Krishnamurti Kamble

**DYNAMIC RECONSTRUCTION FOR PARALYTIC LAGOPHTHALMOS OF LEPROSY WITH TEMPORALIS MUSCLE TENDON TRANSFER**

K. Kamble 1, S. V. R. G. lalte 2, R. sabat 2

1Reconstructive Surgery, 2Regional Leprosy Training and Research Institute, Lalpur, Raipur, RAIPUR, India

**Introduction:** Involvement of facial and trigeminal nerves resulting in lagophthalmos is seen in 2-3% patients with leprosy. The resultant blindness has widespread quality of life and socioeconomic consequences. As a part of health initiative by Govt. of India, ophthalmic reconstructive surgery was initiated in tribal region of central India in April 2003. The follow up period ranged from 1 year to 7 years. The long term outcome of this initiative is being presented.

**Methods:** A total of 80 patients with 86 lagophthalmos underwent reconstructive surgery between April 2005 and December 2011. Standard WHO definition lagophthalmos and its grade. Preoperatively, lid gap measurement along with assessment of vision and corneal sensation was performed. Patients with active ocular infection, visual impairment from other cause and lagophthalmos of less than 6 months duration were excluded. We have used modified Johnson’s method which is based on principal of closure of an open aperture by pulling along its long axis. In this procedure the temporalis tendon is augmented either with Palmaris longus graft or Tensor fascia lata graft and re-routed through upper and lower eyelid and then sutured at the medial palpebral ligament. The procedure was performed under local/regional anesthesia in 71 patients; 9 patients required general anesthesia for harvesting TFL graft.

To avoid chewing the patients were kept on liquid diet postoperatively for the period of 3 weeks. After the 3 weeks patients are taught about the Think and blink reflex by physiotherapist. The upper eye lid closes like a shutter when patient clenches the teeth.

**Results:** The median age was 30 years with male preponderance (male, female ratio of 11:1). All patients had WHO grade II lagophthalmos and corneal sensation was absent in 21 (28%). Epiphora was present in 50% patients. This procedure provided excellent result in 97.45% cases. The median duration of surgery was 40 minutes. The result were superior in patients who understood the think and blink concept. In 2(2.6%) patients there was failure of tension in grafted tendon; one patient developed skin infection at the site of temporalis tendon harvest. All patients have received systemic treatment for leprosy.

**Conclusion:** Temporalis muscle tendon transfer provides excellent correction of paralytic lagophthalmos of leprosy. The procedure is safe, effective and provides dynamic function.

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**P-306**

**Presentation Time:** Thursday 19/09/2013 at 10:50 – 11:00  
**Abstract Topic Name:** Surgical Rehabilitation  
**Presentation Screen Number:** 1  
**Presenter:** Sajid Husain

**DOES THE DECOMPRESSION OF THE PERIPHERAL NERVE MAY PREVENT THE PROGRESSION OF THE DEFORMITY IN LEPROSY**

S. Husain 1, 2

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**Introduction:** Peripheral nerve involvement results in deformities formation in leprosy. High doses of (40-60 mg) steroids along with the anti leprosy drugs is the preferred , even though the 70-75% cases develop deformity with above treatment.

**Methods:** A surgical intervention in the form of epineurotomy by multiple longitudinal incisions and external decompression to relieve the internal pressure through out the involved segment is considered the treatment of choice after “steroids failure”.

772 ulnar nerves, 120 median nerve and 108 posterior tibial nerves not responding to above medical treatment in 12 weeks, were under taken for external and internal nerve trunk decompression. These cases were followed-up for 5-20 years at various intervals.

**Results:** The pain in nerve (neuritis) recovered in all cases of ulnar, median and posterior tibial nerves. Full sensory recovery with pin prick / feather or cotton wool touch was seen in 50% cases of all the three nerves. 20% cases maintain the preoperative levels of sensory plantar ulcers healed with in 6 months after decompression of posterior tibial nerve. Only 6 cases showed recurrences.

Over all motor recovery in ulnar nerve was seen 89% and 70%, in median nerve.

**Conclusion:** The observations suggests that along with basic care of hands & feet, the cases not responding to steroid therapy of 12 weeks or more who had nerve decompression showed better functional hands and feet which would not have been possible without timely surgical intervention.

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**P-193**

**Presentation Time:** Thursday 19/09/2013 at 10:30 – 10:40  
**Abstract Topic Name:** Epidemiological Surveillance  
**Presentation Screen Number:** 2  
**Presenter:** Michel Sawadogo

**TENDANCES DE LA DÉTECTION DES NOUVEAUX CAS DE LÈPRE PAR PROVINCES DE 2007 À 2012 AU BURUNDI**

S. Michel 1, Etienne 2

1Damian Foundation, Bujumbura, Burundi, 2Damian Foundation, Bruxelles, Belgium

**Introduction:** Une évaluation de la détéction a été faite au Burundi en vue de dégager les tendances de la détection des nouveaux cas de lèpre au Burundi tout en assurant une analyse par provinces. La période considérée va de 2007 à 2012. L’objectif principal est de décrire les tendances épidémiologiques de la lèpre à travers l’incidence de la lèpre par provinces.
Methods:  It’s an observational study which concerned all the districts (17) provinces of the country. We have collected the cases from each and every hospital and OPD by enrolling the cases in the program National Leprosy and Tuberculosis of 2007 to 2012. We have analyzed the data presented in the form of tables and charts.

Results: The numbers of total cases reported in 2007, 248 cases have been notified with 285 cases of MB and 20 cases of PB by the 2013. In 2008, 280 cases were notified with the cases of MB and 20 cases of PB. The proportion of cases with MB and PB had increased during this period. It was noted that the number of cases increased from 1.1 to 1.2 per 10,000 inhabitants in 2008. However, in 2013, the number of cases decreased to 0.4 and 1.1 per 10,000 inhabitants, respectively. The proportion of MB cases was higher than PB cases throughout the study period. The highest proportion of MB cases was observed in 2008 (1.2), whereas the lowest proportion was observed in 2010 (1.0).

Conclusion: The number of cases notified in the study period was significantly higher than the national average. This suggests that the study area may have a higher prevalence of leprosy compared to other regions. The decreasing trend in the number of cases over the years could be due to the implementation of effective control measures and awareness campaigns. However, the proportion of MB cases has remained consistently higher than PB cases, indicating a need for further research into the transmission dynamics and potential risk factors associated with MB cases.
B LYMPHOMA AND BL LEPROSY - CLINICAL AND HISTOPATHOLOGICAL CORRELATION

A. D. C. N. Nascimento 1,2
1 Medical, Unidade de Referência Especializada Dr. Marcelo Cândido - AIFO, Mantuba, Brazil
2 Epidemiologist, Ministry of Health, Kano, Nigeria

Introduction: Clinical case of patient S.R.G., 66 years old, male, resident in Belém-Pará, Brazil. He looked for Dermatology Service of Universidade Federal do Pará in February 2011, complaining inflammatory lesions spreaded on the body since 2009, without sintomatology. He had done a previous histopathological examination with a result that suggested lymphocytic infiltrate Jessner type. Another one showed a B lymphoproliferative process. Both were done in 2009. Bacilloscopy was negative in this period.

Immunohistochemical staining:
- CD3 Positive
- CD20 Positive
- KI67 Positive
- BCL6 Positive

Clinical evaluation with diagnostic suspicion of B Lymphoma and BL Leprosy associated Histopathological examination confirmed both pathologies. The importance of a good differential diagnosis and pathological correlation of the different types of lesions.

Conclusion: The patient was submitted to both specific treatments with a very good result: lesions disappeared and BL Leprosy lesions became only residual. The patient continues to be followed by medical visits in Dermatology and Oncology.

P-330
Presentation Time: Thursday 19/09/2013 at 10:50 – 11:00
Abstract Topic Name: ENL Reaction 2 and Dermatology
Presentation Screen Number: 3
Presenter: Erik Post

COMMON SKIN DISEASES AND HEALTH SEEKING BEHAVIOUR IN KANO STATE, NORTHERN NIGERIA

E. Post 1, T. Dahiru 2, A. Barnmin 3, T. Hussain 4
1 KIT Health, Royal Tropical Institute, Amsterdam, Netherlands
2 Netherlands Leprosy Relief, Jos, 3Garkida Leprosy Hospital, Adamawa State Ministry of Health, Yola, 4PHC Department, Kano State Ministry of Health, Kano, Nigeria

Introduction: In recent years, OPD staff of “leprosy” hospitals in northern Nigeria was trained in dermatology to diversify their work. State control teams requested and received similar training. Management of common skin diseases at the “1st ports of call” might complement stretched TB Leprosy services. While enhancing knowledge and skills of basic health providers, referral of difficult cases (also leprosy) could be done to referral health centres. Preparing a pilot project, we looked at health seeking behaviour for common skin diseases to explore which health care providers are chosen as the 1st port-of-call.

Methods: We used semi-structured questionnaires for the general public and for patients, triangulated by 4 FGDs with male and 4 with female participants. Six wards in two districts were randomly selected, then streets were randomly selected, where all present residents were interviewed (N=166). Photos of common skin diseases were used in the interviews. The contributions are acknowledged of Kabir Bello Dumbulant, from the Department of Sociology, Bayer University, Kano.

Results: Age, education, income, and occupation represented the general population, although women were underrepresented (around 30%). Respondents resided for 85% within 4 km from a basic rural responders make use of traditional healers (TH, mostly herbalists)37%, patent medicine vendors (PMV)26%, and OPDs of general hospitals or busy health centres (27%). They make little use of PHC facilities (11%). Urban respondents have a preference for OPDs of hospitals and busy health centres (70%). Both rural and urban respondents increasingly go to hospitals or busy health centres in case the 1st choice consultations fail to produce results. FGDs showed similar patterns. Patients presenting with skin conditions in OPDs of 2 general hospitals followed a similar pathway: they used herbalists (18%), pharmacy shops (24%) and busy clinics (39%) as the most important 1st port-of-call, and skipped PHC facilities (3%). Most patients delayed more than 4 weeks before arriving at the OPD, some delayed several months. Patients said to be taking their own decisions in all health seeking steps, but in the FGD and the general public interviews, many other decision makers were mentioned, such as parents, husbands, elders, neighbors, community leaders, friends, and siblings.

Conclusion: 1st port-of-call providers as seen from the community perspective might have to be included in community dermatology approaches. People with skin problems (including initial leprosy) go to a variety of health providers: traditional healers, patent medicine vendors, and busy health facilities. These providers could be useful targets for basic training. The results of the study were taken as the starting point for a pilot project in community dermatology.
**P-263**

**Presentation Time:** Thursday 19/09/2013 at 10:40 – 10:50  
**Abstract Topic Name:** Relapse and Drug Resistance  
**Presentation Screen Number:** 4  
**Presenter:** Noboru Nakata

**MUTATION ANALYSIS OF MYCOBACTERIUM LEPRAE GENES AND DRUG RESISTANCE USING CULTIVABLE MYCOBACTERIA.**

N. Nakata 1, M. Kai 1, M. Makino 1

1Mycobacteriology, Leprosy Research Center, National Institute of Infectious Diseases, Tokyo, Japan

**Introduction:** Dapsone, rifampicin, and fluoroquinolones are major drugs used to treat leprosy. Mutations in the Mycobacterium leprae folP1, rpoB, and gyrA genes are known to be associated with resistances to dapsone, rifampicin, and fluoroquinolones, respectively. Because M. leprae has not yet been cultured on artificial media, it requires 11 to 14 days to double in experimentally infected mice, it is difficult to determine the drug susceptibilities of M. leprae isolates. It would be very helpful for the molecular diagnosis if mutations responsible for the drug resistances could be determined without using M. leprae cells.

**Methods:** Mycobacterium smegmatis mc2155 and Mycobacterium bovis BCG Tokyo were used as hosts to produce strains for drug susceptibility testing. The wild-type folP1, rpoB, and gyrBA genes of M. leprae were amplified from control of Thai strain DNA by PCR and cloned into shuttle plasmids. To introduce mutations into the genes, site-directed mutagenesis was performed by using PCR. M. smegmatis and M. bovis BCG cells were transformed with plasmids carrying the M. leprae folP1, rpoB, or gyrBA with or without a point mutation. The transformants were subjected to allelic exchange using a temperature-sensitive mycobacteriophage to disrupt the folP1, rpoB, or gyrBA on their own chromosome. The MIC values for the recombinant strains were determined by culture on Middlebrook 7H10 agar plates containing 2-fold serial dilutions of the antibacterial drugs.

**Results:** Twenty-one point mutations in the M. leprae folP1 and eleven point mutations in the M. leprae rpoB were tested using M. smegmatis. Several mutations detected from M. leprae clinical specimens did not give rise to the drug resistance. Functional replacement of the M. smegmatis gyrBA with the M. leprae gyrBA counterpart was not successful. Therefore, instead of M. smegmatis, we tried to use M. bovis BCG as a host bacterium for the fluoroquinolone-susceptibility testing. The M. leprae gyrBA successfully replaced the M. bovis BCG gyrBA.

**Conclusion:** Molecular methods designed to detect drug resistance have some limitations. In some cases, the identified mutations are not related to the acquisition of resistance. We established a method to determine the mutations responsible for the drug resistances of M. leprae using recombinant cultivable mycobacterial strains. This method can directly access the influence of designated mutations in the M. leprae genes.

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**P-264**

**Presentation Time:** Thursday 19/09/2013 at 10:50 – 11:00  
**Abstract Topic Name:** Relapse and Drug Resistance  
**Presentation Screen Number:** 4  
**Presenter:** Thomas Gillis

**DRUG RESISTANCE MONITORING OF LEPROSY PATIENTS IN THE UNITED STATES**

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**Introduction:** Although resistance of Mycobacterium leprae to antileprosy drug therapy has been observed in many highly endemic countries of world, global prevalence rates have not been well established. Recently a global surveillance program has been established, coordinated by the WHO, to monitor leprosy drug resistance. This program does not however, include low endemic countries such as the United States even though the majority of US patients have origins in many of the endemic areas of the world where drug resistance has been identified, including India, Brazil, Southeast Asia, and Africa. Because early case detection and multidrug therapy are the only current effective means to control this disease, determining leprosy drug resistance trends in the US is important. Preliminary work at the NHDP has identified drug-resistant strains of M. leprae which has also lead to the development of rapid molecular assays for identification of drug resistant leprosy from crude biological tissues. Recently we identified a case of primary multidrug resistant leprosy in the US, a country where the disease is rare and is therefore a cause for concern. The objective of this study was to begin to define the rates of M. leprae drug resistance in US leprosy patients, thereby providing valuable information not only to improve patient treatment outcome but in the global context of leprosy drug resistance monitoring.

**Methods:** Skin biopsies from 50 patients who presented to the NHDP Disease Program clinics or participating sites during 2011-2012 were included in this study. These patients were new patients or MDT-treated patients with suspected relapse and included both paucibacillary (PB) and multibacillary (MB) disease. DNA was purified from paraffin-embedded sections or ethanol-fixed biopsy specimens using DNeasy Kit and initially tested for the presence of M. leprae RLEP sequences using a molecular RLEP OPOR Taqman assay. Positive samples were then tested for the presence of mutations in the drug resistance determining regions (DRDR) of rpoB (associated with rifampin resistance) and foIP1 (associated with dapsone resistance) using M. leprae DRDR Biplex PCR/direct DNA sequencing assay. Alignments to drug-susceptible M. leprae DRDRs were made using ClustalW and mutations were identified. When resistance to either of these drugs was observed the DRDR of gyrA gene was amplified and evaluated for mutations associated with ofloxacin resistance.

**Results:** Of the 50 RLEP-positive biopsies tested, 49(98%) were obtained from MB and 20%(from PB leprosy patients. Only 1/10(10%) of PB biopsies were positive for amplification of both foIP1 and rpoB DRDRs. However 38/40(95%) MB biopsies were positive for amplification of both rpoB and foIP1 DRDRs. No resistance was found in the PB patient. However, 2/38 (5.3%) MB patients harbored M. leprae with mutations in the foIP1 DRDR consistent with dapsone resistance and 1/38 (2.6%) MB patient had a mutation in the rpoB DRDR consistent with rifampin-resistant leprosy. No ofloxacin resistance was observed.

**Conclusion:** Resistance to both rifampin and dapsone was observed in US leprosy patients. Resistance levels were comparable to those found in global surveillance study.

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**P-424**

**Presentation Time:** Thursday 19/09/2013 at 10:30 – 10:40  
**Abstract Topic Name:** Leprosy Control  
**Presentation Screen Number:** R  
**Presenter:** Shivakumar Muguladabbata

**ENHANCING THE ACCESS AND SUSTAINABILITY OF LEPROSY SERVICES IN PARTNERSHIP WITH CIVIL SOCIETY ORGANIZATIONS: EXPERIENCE FROM INDIA.**

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**Introduction:** Declining expertise and commitment among General Health Staff in leprosy poses serious challenges in improving the access and sustainability of leprosy services in India. So there is an urgent need to develop sustainable leprosy service delivery model with increased participation and empowerment of local community.

**Methods:** Damien Foundation in India conducted an observational study to examine the feasibility of involving civil society organizations to implement sustainable leprosy services in Krishnagiri district, Tamil Nadu in the year 2012. Four developmental NGOs with good network at the grass root level were identified to cover the whole district. These NGOs are mainly involved in women empowerment through facilitating self help groups in villages to deliver microfinance services, rural development, education of children and healthcare education. NGO with experience in leprosy control was made as nodal NGO with the mandate to select NGOs, train them in self care and identification of suspects, establish coordination with the government health system, also the monitoring and supervision of four local NGOs. The Local NGOs were requested to submit the monthly reports to nodal NGO. The intervention package for the involvement of local NGOs includes updating the disability register, visit persons affected by leprosy with disability to support and motivate them to practice self care; support patients under treatment; refer patients with complication; identify, provide and monitor the livelihood support of newly affected persons and facilitate to receive government entitlements and dissemination of message on leprosy and suspect referral.

**Results:** The NGO staff and volunteers updated the list of persons affected by leprosy with disability. Initial list of 505 persons affected by leprosy with disabilities received from district leprosy office was updated by the local NGOs and the numbers became 410 after additions and deletions from the list. An assessment after one year of implementation showed a remarkable improvement in the proportion of disability cases practicing self care from 16% to 89% and all of them were frequently followed up by local NGO members. Around 70% of plantar ulcers healed. There are 35 new leprosy cases confirmed from 363 suspects referred by the local NGOs. Fifty one persons were identified and supported with social economic assistance. The most promising result was change in the mindset of the community towards persons affected by leprosy. The local NGOs members were able to provide counseling, assist them to receive government entitlements and ensure regular practice of self care.

**Conclusion:** Involvement of civil society organizations to improve the access and sustainability of leprosy services is feasible. The short term results of the pilot project is encouraging and long term impact of the project need to be studied in future.
**P-425**

**Presentation Time:** Thursday 19/09/2013 at 10:40 – 10:50

**Abstract Topic Name:** Leprosy Control

**Presentation Screen Number:** 5

**Presenter:** Weena Prinikaw

**COST-EFFECTIVENESS ANALYSIS OF COMBINED ACTIVE AND PASSIVE VERSUS PASSIVE LEPROSY CASE DETECTION ALONE IN THAILAND**

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**Introduction:** Leprosy is one of infectious disease which leads to physical and social consequences for those who affected. Regarding leprosy situation in Thailand, it has been shown that the prevalence has been gradually declined from 51.0 cases per 10,000 in 1964 to 0.17 case per 10,000 inhabitants in 2007. According to WHO definition, the prevalence of less than 1 per 10,000 populations means that leprosy is not a public health problem. However, the proportion of new cases with grade 2 disability at the time of diagnosis has not declined which could be interpreted that the delayed diagnosis still exists, since 1984 to 2007 has been between 11.76% and 11.46%.

Case finding is one of the core activities of leprosy elimination and control. There are two methods of case finding which are; active case detection (ACD) and passive case detection (PCD)

In Thailand, the prevalence rate has gradually declined and the budget is limited, appropriate case detection is needed. The researcher, therefore, is interested to carry out a comparative study of passive case detection alone and combined active and passive methods of leprosy case detection, to find out which one is most effective.

**Methods:** This study is a retrospective analytic study, is focused on the analysis of the cost for combined ACD and PCD versus PCD alone method in which how to calculate the costs for each case detection methods, how to determine as the number of case detection and the data come from primary data, secondary data from the leprosy elimination program of Thailand (2006).

**Results:** The major objective of this study is to analyze the cost and effectiveness of different case finding activities: Combined active and passive leprosy case detection versus Passive leprosy case detection alone for the year 2006 in Thailand, from provider as well as patient perspectives. In this study, effectiveness in terms of new cases detected is used to find out which method of case finding activity is better. The cost-effectiveness ratio are calculated for non-endemic and endemic areas.

The total cost, from the provider perspective, of the combined ACD and PCD method was 1,427,800.23 Baht and the number of newly detected cases 35. The cost-effectiveness ratio was 40.79,04-29 Baht. The total cost, from provider perspective, of the PCD alone method was 1,340,230.20 Baht, with 16 newly detected cases. The cost-effectiveness ratio was 83,764.39 Baht. The total costs from a patient perspective were similar in both combinations, higher in non-endemic areas than in endemic areas. The study concludes that the combined ACD and PCD method successfully detected more new cases than the PCD alone method. At the time of detection, using ACD, 8.3% cases had a disability of grade 2 compared with 14.3% and 12.5% using ACD and PCD; and PCD alone method as respectively. This may reflect the delay in case detection using PCD alone method. When we use weight calculation, the result is that the cost-effectiveness ratio of PCD alone method is 1,271.119, and 1.24 times is higher than combined ACD & PCD method in non-endemicarea, endemic area, and region level respectively.

**Conclusion:** The combined ACD and PCD method successfully detected more number of newly detected case than PCD alone method. At the time of detecting by ACD, 8.7% cases had disability grade 2. This may be a reflection of a delay in case detection of PCD alone method.

**P-426**

**Presentation Time:** Thursday 19/09/2013 at 10:50 – 11:00

**Abstract Topic Name:** Leprosy Control

**Presentation Screen Number:** 5

**Presenter:** Ashutosh Prabhavalkar

**STRENGTHENING THE MONITORING SYSTEM OF LEPROSY CONTROL ACTIVITIES AT PERIPHERAL LEVEL (PHC) USING A SIMPLE TASK ORIENTED PERFORMANCE MONITORING TOOL: A PILOT INITIATIVE IN 2 HIGH ENDIMIC DISTRICTS OF MAHARASHTRA, INDIA**

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**Introduction:** The process of integrating leprosy control services within General Health Care (GHC) System was accomplished even before India attained goal of leprosy elimination, at national level, in December 2005. Similar process took place in the state of Maharashtra too. However the increased trend of new case detection at sub-national level indicates lack of involvement by the GHC personnel in leprosy control activities. Absence of an efficient monitoring system poses challenge to the prospects of sustaining leprosy control activities in the integrated setting. Score range indicators are used to monitor the epidemiological trend of leprosy under National Leprosy Eradication Program (NLEP) at different level that is limited to new case detection but it will not reveal the performance levels. There is an imperative need to develop a simple monitoring tool that can assess the performance and progress of NLEP at peripheral level, Primary Health Centre (PHC).

**Methods:** As a part of WHO-AWP project, a simplified monitoring tool based on rapid appraisal method was designed to demonstrate its usefulness in monitoring the performance of leprosy control activities at peripheral level. The tool comprised of 25 process indicators grouped under 5 major activities of NLEP in the context of WHO's Enhanced Global strategy, such as i) New Case Detection; ii) Leprosy Management; iii) PPD services & Referral System; iv) Review of Programme and v) Perception and Motivation of staff. Each indicator was scored using 4 to D scales and measured in descending order based on the performance. Thus the total score ranges between 100 as maximum and 0 as minimum. It is used as a ‘baseline’ for grasping the level of performance of leprosy control activities in each PHC and assessed periodically to measure the changes. 21 PHCs, 10 in Gondia & 11 in Chandrapur districts in Maharashtra state were assessed using this tool during July to December 2012. The scores for each PHC were compared with the baseline and at the end of project.

**Results:** The overall cumulative score for 21 PHCs had increased by 24% from baseline in both the 2 districts. However it ranged between 15% in Gondia district and 34% in Chandrapur districts. While the improvement in performance of new case detection was 36% and 41%, it was 19% and 120% in PPD & Referral system in Gondia and Chandrapur districts respectively. It was observed that 8 out of 21 PHCs showed increase in score as compared to baseline, however 11 PHCs had decreased score and in 2 PHCs the score remained unchanged. Based on total score obtained 21 PHCs were ranked 1 to 15 at the beginning and 1 to 13 at the end of project. Similarly, PCD wise score range, which was 37 to 65 at the baseline raised to 56 to 83 indicating overall improvement in NLEP performance of PHCs.

**Conclusion:** This monitoring tool is user friendly and proved to be effective in measuring and monitoring progress towards implementation of leprosy control activities at PHC level. In an evaluation context, this tool allows the supervisory staff to gather valuable input from PHCs that provides a simple and reliable means to assess the performance of NLEP Periodical assessment helps to measure the achievements and also facilitates ranking of PHCs on the effectiveness of the interventions and help in taking remedial action for improvement. To fulfill the need for simple monitoring tool for leprosy control activities at the PHC level, this tool has established the potential to assess all the components of NLEP and to take advantage of it for program planning, monitoring and evaluation needs.

**P-369**

**Presentation Time:** Thursday 19/09/2013 at 10:30 – 10:40

**Abstract Topic Name:** Detection and Treatment of Reactions

**Presentation Screen Number:** 6

**Presenter:** Uday Thakar

**USE OF THALIDOMIDE IN TYPE II LEpra REACTIONS IN PRIVATE DERMATOLOGICAL PRACTICE SETTING**

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**Introduction:** Type II Lepra Reaction is an acute episode in the course of leprosy. Thalidomide, apart from oral corticosteroids is used for control of these reactions.

**Methods:** Total 24 serial patients of Type II lepra reaction (16 male and 8 female, age range to 60 years) were treated with Thalidomide as an adjunct to oral Prednisolone in doses of 40 to 60 mg and Thalidomide was added after initial control of inflammation, obtaining patient’s consent and doing certain investigations. Starting dose of Thalidomide for adults was 300 mg per day was tapered every month. Tapering was done till 100 mg alternate day dose was reached. Steroids were tapered to the lowest possible dose and stopped if possible.

**Results:** Complete stoppage of oral steroids and thalidomide was possible in only 4 patients. All other patients could be maintained in symptom Free State only with a low dose (5-10 mg) of Prednisolone and 100 mg alternate day thalidomide. Stoppage of either of the drugs leads to relapse of ENL lesions within 1-3 weeks.

**Conclusion:** Thalidomide is a very useful drug to control type II lepra reactions and wean off oral corticosteroids and achieve significant symptom control without steroid related untoward effects. But most patients continued to require repeated courses of small doses of Thalidomide and oral Prednisolone. In our series, 2 patients developed nausea in first 2 weeks of Thalidomide and 9 patients suffered from dryness. Both these patients did not require stoppage of treatment. A model was developed to provide thalidomide free of cost, or at economical rate to the patients in collaboration with NGOs working in the field of leprosy.


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Presentation Time: Thursday 19/09/2013 at 10:40 – 10:50
Abstract Topic Name: Detection and Treatment of Reactions
Presentation Screen Number: 6
Presenter: Satish Kumar Paul

INTRA AND INTER TESTER RELIABILITY OF NERVE PALPATION IN THOSE AFFECTED BY LEPROSY

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Introduction: There are different assessments and tests done for the diagnosis of Leprosy in a hospital. Nerve palpation is still considered to be one of the important methods of identifying Leprosy in the field. It is also one of the cardinal signs of Leprosy. In pure neuritic leprosy, the assessment of nerve thickening is often the only means of diagnosis. Intra tester and inter tester reliability of the nerve palpation is very important to confirm the diagnosis of Leprosy in such field conditions because it may be the only method of diagnosing neuritic Leprosy.

Methods: This study was conducted at the 150 bedded TLM Leprosy Home and Hospital at Purlua, India. There were two different testers, who alternated in the sequence in which the tests were performed. The possibility of a systematic bias in terms of first and second tester in this dataset was excluded.

The Ulnar, Radial and Lateral popliteal nerves were assessed by the two testers in 50 Leprosy affected patients. 150 pairs of nerves were tested by each tester. There were 9 female patients and 41 males. 49 patients were MB and 1 was PB.

Results: The Kappa was calculated for the intra tester as well as the inter tester reliability. It showed that the intra tester reliability was higher for the Lateral Popliteal and the Ulnar nerve. The intra tester reliability was lower for the Radial nerve. The inter tester reliability for the Lateral Popliteal nerve was excellent. The inter tester reliability for the Ulnar nerve was very good.

The intra tester reliability for the Radial nerve was fair as the Kappa calculation showed, but the inter tester reliability for the radial nerve was very poor.

Conclusion: There is a high rate of intra tester reliability in the palpation and identification of nerve thickening in the Ulnar and the Lateral popliteal nerves. This shows that the testers who palpate the nerves are convinced that there is a thickening. On the other hand, the inter tester reliability is lesser, but not very significant.

On the other hand, the intra and inter tester reliability on palpation of the radial nerve was not high. The results show that the type of nerve that is affected in Leprosy can cause some misdiagnosis. The radial nerve is not very commonly affected in Leprosy, but since the intra as well as intertester reliability is poor when he radial nerve was palpated, additional care needs to be taken when this nerve is palpated.

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Presentation Time: Thursday 19/09/2013 at 10:50 – 11:00
Abstract Topic Name: Detection and Treatment of Reactions
Presentation Screen Number: 6
Presenter: Vivek Pai

MANAGEMENT OF REACTIONS - THERAPEUTIC CHALLENGES

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Introduction: Reactions in Leprosy are a major clinical concern in view of its propensity for nerve damage and deformity. The timely management of reactions is therefore important to control reactions and nerve damage and disease burden. Clinical trials in leprosy using Clofazimine in anti reational doses along with Prednisolone based regimen were reported earlier in 2004 (Pai et al 2004 and 2012). We share below our further observations in the study using this regimen to control reactions with emphasis on type I reactions.

Methods: Patients with reactions attending the Main Referral Centre and satellite clinics of Bombay Leprosy Project were included in the study. 82 patients (55 were males and 27 females) were considered for analysis of which 10 defaulted and could not be included in the analysis. Hence records of 72 patients (type I = 40 and type II = 32) were analyzed. 38 patients were of BI < 3+ and 34 patients were of BI > 3+. Out of 82 patients, 15 patients had lesions on face while 9 patients had neuritis. All patients were subjected to detailed clinical, bacteriological and neurological examination. Clinical photographs taken in selected cases. Patients were then put on standardized anti inflammatory regimen of Clofazimine and followed up for two years.

Results: Of 72 patients analysed maximum improvement was observed in 37 (92%) patients with type I reaction while 11 (40%) patients with type II reaction improved. Recurrence was seen mostly in type II reaction after 6 months of stopping Clofazimine. No major adverse effects observed seen. It was also observed that there was a significant improvement in 14 (98%) patients with lesions on face. Improvement was not observed in few patients with neuritis.

Conclusion: Observations from this study confirm that Clofazimine when used in higher doses in a standardized regimen administered for an optimum duration is an excellent drug to control reactions including type I reaction. The need for steroids is obviated greatly as recurrences are controlled well and also wean of patients dependent on steroids.

P-481
Presentation Time: Thursday 19/09/2013 at 10:30 – 10:40
Abstract Topic Name: CBR
Presentation Screen Number: 7
Presenter: Dr Mannam Ebenezer

INCLUSIVE LEPROSY COMMUNITY BASED REHABILITATION AND ITS IMPACT ON ACTIVITY DAILY LIVING AND SOCIAL PARTICIPATION OF PEOPLE WITH LEPROSY RELATED DISABILITIES IN KATPADI AND GUDIYATHAM BLOCK OF VELLORE DISTRICT, INDIA

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Introduction: The Schieffelin Institute of Health and Research Leprosy Center (SIHRLC), Karaigiri has been working towards leprosy control and rehabilitation for several decades. In order to include leprosy affected persons in mainstream services and facilities, the institution has adopted an inclusive leprosy Community Based Rehabilitation (CBR) approach to create an equal opportunity in health, education, livelihood, social and empowerment of persons with disability due to leprosy and people with other disability due to various causes. An intensive community based rehabilitation program was initiated in selected panchayat villages in the control area to provide comprehensive rehabilitation care in order to improve activities of daily living, social participation and quality of life of people with disability. The present paper evaluates the impact of inclusive leprosy CBR and its impact on activity daily living and social participation of people with leprosy related disability.

Methods: The Screening Activity Limitation and Safety Awareness (SALSA) and Participation Scale were used to measure the impact on activity limitation and participation restriction through inclusive leprosy CBR program. A total sample size of 317 respondents, 187 male and 130 female with impairment and disability were selected from 30 panchayat villages of Katpadi and Gudiyatham block of Vellore District, India. Data was collected by professionals experienced in physiotherapy and occupation therapy through household survey.

Results: The result of SALSA data shows that the activity daily living among male 80 (43.0 %) and female scored 64 (49.2 %) in Mild limitation (10-24), male 53 (28.2 %) and female 31 (23.8 %) in Mild limitation (25-39), Moderate limitation (40-49) male 28 (15 %) and female 16 (12.3 %), and male 17 (9 %) and female 8 (6.2 %), scored in Severe (50-59) and in Extreme severe (60-80) male 9 (4.8 %) and female scored 11 (8.4 %). The result is n2 = 4.136, p=0.3877, activity limitation scores were not significant between gender with impairment and disability. There is no association between gender and SALSA scores (n2 = 4.137, p=0.3877). The impact of the program in Participation restriction among male 126 (67.3 %) and female 73 (56.1 %) scored in No significant PR (0-12), Mild PR (13-22) male 30 (16 %) and female 19 (14.6 %), Male 9 (4.9 %) and female 12 (9.3 %), scored in Moderate PR (23-32) and Extreme PR (33-52) Male 17 (3 %) and female 19 (14.7 %), and male 9 (4.9%), female 7 (5.3%) scored in Extreme severe PR. The n2 = 8.4121 p= 0.0765 not significant. There is no association between gender and participation restriction score were (n2 = 8.412, p = 0.08)

Conclusion: The social impact on daily life and participation were not making any differences among persons with leprosy related disability through the study. It shows that how an inclusive CBR approach made an impact on improvement in activity daily living and participation in social life by including persons with disability in the mainstream services and facilities. It makes useful recommendations for leprosy and disability service providers to ensure and plan suitable interventions strategy for people with leprosy related disability which protects their rights, provides equal opportunity and increase full participation in the society. Keyword: Activity daily living, social participation, protection of rights, equal opportunity, mainstream, inclusive leprosy CBR
THE IMPACT OF COMMUNITY BASED REHABILITATION: A SYSTEMATIC LITERATURE REVIEW, 2002-2012

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Introduction: Community Based Rehabilitation (CBR) is the primary means by which most people with disabilities in economically developing countries receive services. It is also a key strategy in services to people with leprosy-related disabilities. CBR has evolved into a multi-sectoral approach, and has been further strengthened and defined by publication of the CBR Guidelines and the CBR Matrix. In spite of the energy that has gone into CBR and its adoption by national governments and many NGOs, there have been repeated calls for evidence regarding the impact of CBR.

Methods: A search of PubMed, CINAHL, PsycINFO, Web of Science and askSource databases was conducted across the years 2002-2012. Search terms included Community based rehabilitation, impact and effect. Only studies conducted in low or medium Human Development Index (HDI) countries, and measured from the perspective of people with disabilities were included.

Results: From 253 initial documents, seven met inclusion and exclusion criteria. Studies were categorized against the CBR Matrix and rated for methodological rigor (qualitative and quantitative). The area with greatest number of documented sources was the health domain. Findings, in the form of statements describing available evidence are presented under each heading of the CBR Matrix.

Conclusion: The evidence for the impact of CBR continues to be weak. There is increased evidence that health related interventions carried out in the community have a significant impact. Most studies have design issues which limit the reader’s ability to attribute change to the intervention. The application of innovative indicators of methodological quality and the use of the CBR matrix provides a useful template for similar future reviews.

ROLE OF SELF HELP GROUPS (SHG) IN PROMOTING SUSTAINABLE LIVELIHOOD OUTCOMES FOR INDIVIDUALS AFFECTED BY LEPROSY

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Introduction: Self Help Groups (SHGs) are recognized as community based groups that play a pivotal role in transforming the lives of the poor and marginalized. SHGs also prove to be powerful instruments in ensuring access to rights for those who are denied the same. The Leprosy Mission Trust India has established about 102 SHGs under Empowering Communities to address their own issues project in Andhra Pradesh state, India. This project facilitates comprehensive and holistic approaches to rehabilitation & integration of persons affected by leprosy into the mainstream. Project promotes livelihood outcomes for people affected by leprosy through SHGs.

Livelihood outcomes are described as reduced vulnerability, increased economic resilience and social well-being and improved food security. This research thus aims to study whether the Self Help Groups have been instrumental in securing livelihood outcomes for its members affected by leprosy. Empowering Communities Project oriented community people and facilitated the formation of SHGs which consisted of people affected by leprosy & disability, people marginalized due to gender. Trainings were provided to SHGs on leadership development, advocacy, human rights and skills development. Guidance was provided to SHG members for livelihood promotion, access to Government schemes and financial institutions, to start income generating activities.

Methods: This study is a field based action research. For the study a purposive sample of 40 Self Help Groups(SHGs) from 4 Blocks were selected (10 SHGs from each Block) which have members affected by leprosy. Study was carried out in Vaizanagaram and Vazhakadambanpattinam in the State of Andhra Pradesh, India.

Data collection was done through Quantitative and Qualitative data collection methods. Mainly through: In depth interviews, Case studies and focus group discussions (FGDs). Questionnaire was pre-designed and tested. The interviewer was trained in carrying out the interviews and FGDs.

200 interviews, 80 case studies and 40 FGDs were conducted. Statistical methods were used for data compilation and analysis.

Results: 80% people affected by leprosy reported that training and guidance have been provided to their Self Help Groups to access financial resources from Government and financial institutions. Guidance and trainings have resulted in initiation of income generating activities such as Poultry farming, animal husbandry, vegetable business and petty shop business. 75% of the leprosy affected members have undertaken entrepreneurship developments activities by accessing bank loans through the Self Help Groups. 65% beneficiaries reported that the income gained through livelihood activities has reduced vulnerability as evident by children going to school, savings that can be used in times of emergency. 75% people affected by leprosy have attained food security due to increased income. 40% of SHG members have increased their assets such as farm animals, house, Agri products.

Conclusion: Training and guidance provided to the Self Help Groups helped them to access financial resources from Government and financial institutions. These were helpful to start income generation activities for members of SHGs. Livelihood activities undertaken by members of Self Help Groups introduce an income generating activities. The members of SHG’s are enhancing the economic resilience through group savings, individual enterprises supported by SHGs and asset creation. Self Help Groups are playing a vital role in promoting sustainable livelihood outcomes for individuals affected by leprosy.
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Presentation Time: Thursday 19/09/2013 at 10:40 – 10:50
Abstract Topic Name: Social Aspects and Quality of Life
Presentation Screen Number: 8
Presenter: Rajni Singh

“CREATION OF SELF-SUPPORT GROUP (SSG) AMONG DISABLED PERSON DUE TO LEPROSY AND LYMPHATIC FIALARIASIS AT VILLAGE PANCHAYAT LEVEL”

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Introduction: India has 62 per cent of the world’s leprosy patients, and Bihar contributes 21 per cent of that. Bihar alone is home to a larger number of leprosy patients than any country. Since five year, more than 19000 new leprosy patients each year registering at Government Primary Health Centre (PHC) in Bihar. More than 30000 disabled cases due to leprosy have been registered since 1998 to 2011. Similarly disabilities due to lymphatic filariasis in Bihar are very high. More than 200,000 elephantiasis and 150,000 Hydrocele cases has been noticed in Bihar since 2009. LEFFRA Society has been implementing a program on community health in 25 village panchayats (group of Village with population of 5-7000) of Munger district. It has formed 23 self-support groups in these Village panchayats.

To improve the quality of life of people in order to Improve functional ability by formation of Self Support Groups (SSG) at Village /Panchayat level.

Methods: The people suffering from Leprosy and Filariasis came under one umbrella with continuous efforts by community and LEFFRA society.LEFFRA Society has supported one year in organizing meeting, preparing minutes and empowering them for their welfare. Also this is due to willingness of people to fight jointly for a common cause. A group of 10 to 12 members (disabled) were formed in each Panchayat. The group members are either people with Leprosy or with Filariasis foot disability. The group members meet once in a month at one of member house to discuss on various issues relate to dissemination of knowledge to others. Basically they talked about more on self-care/ morbidity care / footwear / Govt. welfare scheme, etc. They also visit the Government health centers (as and when required) to access the available health benefits.

We have integrated both disabilities because both are required same type of intervention such as Skin Care, Wound Care, Exercise, Protective footwear and counseling.

Results: At the end of two and half years of the project implementation, 82 % of the groups are active and managing their own without support of LEFFRA. Many are now member of Village Health and sanitation committee of their own panchayat. Due to the motivation by the SSG members, there has been a significant increase in the people who participate in the Health Camps (IPDC camp for people affected with leprosy and Elephantiasis) conducted by LEFFRA Society at Block and Panchayat levels. The group motivates and supports other people suffering from Leprosy and filariasis to visit Government health centers for diagnosis and treatment.

92% SSG member are getting are receiving regular welfare scheme support from Government Welfare scheme such as disability card with appropriate percentage, Antodaya yojana card. Below poverty line card, Indira Aawas, etc. They were supporting other disabled people such as polio, injury, etc. Now these groups are supporting the Govt. Campaign such as cases detection campaign for leprosy. Mass Drugs Administration programme, Disability survey, etc.

Conclusion: The concept of community based SSG was a unique concept in itself. It enhanced Behaviors Change Communications (BCC) skills of people suffering from Leprosy and Lymphedema, developed as an advocacy forum for policy level issues, and the process is self-sustainable in nature because these forums are monitored by them.

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Presentation Time: Thursday 19/09/2013 at 10:50 – 11:00
Abstract Topic Name: Social Aspects and Quality of Life
Presentation Screen Number: 8
Presenter: Mahamath Cisse

A LONG WALK TO THE CHALLENGE FOR INTEGRATION AND INCLUSION FOR PALS

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Introduction: The LEPROSITY VILLAGE has 36 former leprosy patients and their families, has been founded in 1936, like the other leprosy village, to accommodate people affected by leprosy. Leprosy, particularly contagious, controlled at the time gave rise to the fear and mistrust between communities. The closure and separation wall erected around reflected salience of prejudice. Relying on progress in treatment and social support, actors, through multi-sectoral action actors (IEC, advocacy, empowerment, etc) have been reducing the barrier of prejudice and begin the phase of integration. This experience, almost unprecedented deserves that it stops there for the

Methods: • a PRA (participatory research method active) and aperception study of attitudes which showed the existence of social prejudices against cultural Pals
• Comparative study of poverty levels (infrastructure, economic, social) who found the extreme poverty of Pals and their families from the middle
• implementing information, education and communication action to the populations of two communities
• advocacy and involvement of local authorities and administrative
• Spatial planning and allocation of land title
• Implementation of projects inclusive and unifying

Results: social and cultural development: improving social relations between the two communities

Redevelopment physical space with pathways dropping all environmental barriers, which has increased the attractiveness of the town economic: income improvement through projects funded (creation of an bank, poultry projects, millet mill). These micro-projects have served to members of the two communities of Exchange based on mutual respect and enhancement of skills. More frequent contacts allowed, in effect, experimenting with greater social and emotional proximity.

Institutional: improving the perception of the authorities towards the inhabitants of the village and is now recognized as a part of the city.

Conclusion: The experience’s shows the need for a preparation of the population and the construction of a consensus before the redevelopment of the physical space. The experience has also highlighted the need to anticipate the impact of social transformations as carriers of new and new aspirations. About the entities marked by decades of mistrust and mutual fear, they accompanied the wall fence and separation established to bear witness to the significance of prejudices. Thanks to the progress made in the treatment and social support of patients, and especially, thanks to support and training of populations, the reluctance have been overcome, allowing the opening of the integration with communities

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Presentation Time: Thursday 19/09/2013 at 10:30 – 10:40
Abstract Topic Name: Immunology
Presentation Screen Number: 9
Presenter: Dr. Renika Raju

PREDNISOLONE INDUCES A VARIABLE FALL IN TNF-α, ANTI-MYCOBACTERIAL AND ANTI-NEURAL ANTIBODIES ASSOCIATED WITH LEPROSY REACTION AND NEURITIS

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Introduction: Corticosteroids have been extensively used in the treatment of immunological reactions and neuritis in leprosy. Although many patients respond reasonably well there are a group of patients whose reactions/ neuritis fails to respond to steroid treatment. This study hypothesized that individuals who respond differentially to steroids with variable decrease in the levels of plasma molecules and this determines the response of the leprosy reactions and nerve damage. To understand the pathogenesis of molecules at reaction and after steroid treatment a novel analysis was carried out where an individual’s quantitative level of each plasma molecule was compared to their existing level, prior to and after treatment and the initiation of steroids.

Methods: Seven molecules (TNF-α and antibodies to Phenolic glycolipid I (PGL-1) (IgM & IgG), Lipoparabionominannan (LAM) (IgG1 & IgG3), Ceramide and S100) were measured by enzyme linked immunosorbent assay (ELISA) in 72 leprosy patients a month before, during and after the reaction. At the onset of reaction these patients received a standard course of prednisolone.

Results: There was no significant difference in the plasma molecules before and after reaction when analysed by grouping the patients. Increase in the individual plasma levels of molecules were compared a month prior to reaction and the order was TNF-α (53%), followed by antibodies to Ceramide (53%), PGL-1 (51%), S100 (50%) and LAM (26%). This increase was significantly associated with nerve pain, tenderness and new nerve function impairment. One month after prednisolone therapy there was a decrease in the levels of each molecule, and the order of decrease was S100 (67%), TNF-α (60%), Ceramide (54%), LAM (52%) and PGL-1 (47%).

Conclusion: Reactions in leprosy are inflammatory processes wherein there is a rise in set of plasma molecules and steroid treatment induces variable fall in the levels and could be the basis for variable clinical response to steroid therapy.
S. B. Pedriní 1, S. R. S. Udi 2, P. S. Rosa 1, M. S. Dório 1, A. F. T. Belone 1, A. S. A. Barbosa 1, B. G. C. Sartori 1, F. R. Viani Moreno 2

Introduction: The host resistance to M. leprae is dependent on cellular immunity (CI) which results in an in vivo and in vitro activation of macrophages. In the tuberculoid side, due to the deficient CI macrophages are overloaded with acid fast bacilli (AFB). Experimental leprosy models have shown that the inoculation of M. leprae in BALB/c and nude mice results in a decrease in the AFB number, while in athymic mice (nude), due to the absence of CI there is bacillary multiplication and dissemination of infection. The objective of this study was to evaluate the activity of peritoneal macrophages in nude and BALB/c mice inoculated with M. leprae at five and eight months post-inoculation.

Methods: BALB/c and nude (Swiss genetic background) mice were inoculated in the FP with 1x10^7 and 3x10^7 AFB, respectively. The M. leprae suspension was obtained from nodule macrophage (FP) as described in an article. Histopathological analysis of FP revealed a mononuclear inflammatory infiltrate with large number of neutrophils at 5 months in both mice strains, with higher number in nude mice. At 8 months, the number of neutrophils decreased and the infiltrate was predominantly mononuclear. The BI in BALB/c mice ranged from negative to 2+, with predominance of granular AFB, whereas in nude mice, it ranged from 4+ to 6+ with clumps of AFB. In both strains the percentage of neutrophils in the PL was higher at 5 months than at 8 months when the number of mononuclear cells increased. There was no H2O2 and O2- production in the course of infection, in both mouse strains, however they produced high levels of NO compared to their respective controls. In BALB/c the spontaneous NO production was higher at 8 months (5.18 µmol at 2.06 µmol at 5 months), while there was a decrease in the number of AFB. In nude mice the NO levels increased during the experiment (0.57 µmol in the control group, 2.75 µmol at 5 months, 17.50 µmol at 8 months).

Conclusion: In BALB/c mice the NO production resulted in decrease in the number of AFB, while in nude mice the presence of this metabolite did not lead to a decrease in bacterial load. These results suggest the need for additional studies to better understand this mechanism.

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**PRESENTATIONS**

**P-018**

**P-104**

**FUNCTIONAL ASSESSMENT OF T LYMPHOCYTES SUBSETS INVOLVED IN THE PATHOGENESIS OF REACTIVE EPISODES IN LEPROSY MULTICABILLARY PATIENTS.**

L. N. Santos 1, P. H. Silva 1, I. Alvim 1, J. A. Nery 1, E. Sarno 1, D. Esquerena 1

Introduction: Leprosy clinical forms are interchangeable, and, as they alternate during MTX, they give rise to reactions that require further clarification. New cutaneous lesions and/or re-infiltration of previous ones, as well as fever, malaise, joint pain and neuritis are reactive hallmark. Several works that inflammation is exacerbated due to an increase in serum TNF-α, IL-1β and IL-6 production, thus contributing to the severity of lesions. Others indicate an expansion of blood leukocytes subsets during reactions. The purpose is investigate the phenotype and functional profile of T lymphocytes subsets (cytokine production and proliferative response) at the onset of reactions.

Methods: We studied lepromatous RR and ENL patients. Newly diagnosed non-reactional patients were also assessed just after the beginning of MDT. All patients were diagnosed according to Ridley and Jopling criteria and accompanied at Leprosy Outpatient Unit – FIOCRUZ. Venous peripheral blood mononuclear cells (PBMC) were analyzed by multiparametric flow cytometry for ex vivo immunophenotyping. PBMCs were cultured for 6 and 5 days with 20µg/mL M. leprae irradiated (provided by Dr. Patrick Brennan, Colorado State University, USA). Dead PBMC were excluded by fixable viable dead cell stain. Short-term cultures were performed in the presence of costimulatory antibodies anti-CD28/anti-CD49d.5-day cultures were incubated with CFSE to determine antigen-specific proliferation; thereafter, PBMCs were stained with mononuclear antibodies to determine lymphotoxy subsets and cytokine production.

Results: In ENL, T CD3+ lymphocytes were not activated ex vivo. In this reaction, there was a predominance of T CD4+CD49d+ naïve lymphocytes, with a major production of TNF-α and a minor production of IL-10 in response to M. leprae. There was neither significant IFN-γ production nor differentiation for memory cells at T CD4+ lymphocytes. Together with TNF-α production, effector T CD8+CD69+ lymphocytes predominated. Apart from the very low differentiation of CD8+ memory cells, these latter only produced IL-10, and no antigen-specific proliferation was observed. In RR, we observed both activated T CD4+ and CD8+ ex vivo (CD69+). In these patients, ex vivo IL-10 production by CD4+ was a significant finding. We noted differentiation of proliferation of IFN-γ and TNF-α, producing effector T CD3+CD69+ in response to M. leprae. In spite of the low expression of M. leprae specific effector memory cells in RR, IFN-γ production by these cells was relevant, contrary to what happened in ENL patients.

Conclusion: Briefly, our findings demonstrated a preferential IFN-γ production and a proliferative response of T lymphocytes subsets in RR. This response may be a major cause for nerve function impairment in these individuals. Nonetheless, IL-10 production by TCD4+ lymphocytes may imply a role for regulatory T cells in this reactive state, leading to uncontrolled immune-inflammatory responses. In ENL, the concomitant production of TNF-α and IL-10, together with high circulating levels of IL-1β and IL-6 already reported by other authors suggest that these pleiotropic inflammatory cytokines may be at least partially responsible for the clinical manifestations of a type II reaction. The accurate determination of "reactive phenotypes" may appear as a useful tool for control of acute episodes, which are occasionally disabling.
COMMUNITY BASED REHABILITATION IS AN EFFECTIVE INTERVENTION TO INCREASED COMMUNITY PARTICIPATION & SOCIAL ACCEPTANCE OF LEPROSY AFFECTED TO IMPROVED QUALITY OF LIFE.

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Introduction: Leprosy is not only a medical problem; it is also a social, economic and psychological problem as well. Due to advancement in medical sciences, adequate and effective medical treatment is available for curing the disease, but deep-rooted stigma related to the disease is still prevailing in the cultural ethos of the society. As a result of such wrong notion and belief, the leprosy sufferers and even the cured but deformed ones face social problems, economic hardship and psychological tensions, that obstructs peace and harmony in life. With this stigmatized belief, the families as well as community do not hesitate to ostracize their near and dear ones, who are affected by leprosy. In such cases, individual interest of the people affected by leprosy is ignored in the collective interest of the family and the community. To live as a social entity becomes a questionable issue to leprosy sufferers from social – economical and psychological points of view. Efforts to reduce such problems for people affected by leprosy require systematic intervention of facts relating to the factors underlying such problems.

Methods: Field: Two field Units, Western part of Maharashtra, India
Case study methods have been used for collection of data in the proposed study. Two units have been selected from state of Maharashtra where CBR programmes & development activities are implemented.
Sampling: 50 people affected with leprosy from rural areas that have been part of TLM's CBR Projects
Vitals: Male 32, female 18

Results: 80% have increased their self-esteem in everyday life through additional earning from CBR Programmes
75% have reported increased participation in community decision making through Self Help Group Programmes.
65% demonstrate increase in their ability to meet common needs (Health, Children Education etc)
80% have reported increased social acceptance enjoying community facilities.

Conclusion: The Study has revealed that the leprosy affected has shown increased in community participation, social acceptance and approached to the holistic, sustainable, community base inclusive development in the society.

P-029

EXPERIENCE FROM LEPROSY APPLIED TO THE REDUCTION OF STIGMA ASSOCIATED WITH FISTULA IN NIGER. BETWEEN HOPES AND CHALLENGES - THE CASE OF WOMEN IDENTIFIED AT THE SIM DANJA FISTULA CENTRE

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Introduction: In Niger, as in many countries in the world, to suffer from certain diseases is synonymous with loss of human dignity which follows the social rejection that individuals face daily. But great efforts are led by the WHO, governments and many non-governmental organizations to fight the causes and consequences of these diseases. With the recent celebration of the 60th anniversary of World Leprosy Day, it is noted that in Niger, the fight must continue by the government and all organizations in charge of health, disability and all those working for the rights of the person affected by leprosy. People are stigmatized and rejected by their partners and families. They continually suffer social stigma and social rejection. Like leprosy, fistula is a source of degradation of the human person. People are stigmatized and rejected by their partners and families. They continually suffer social stigma and social rejection. Like leprosy, fistula is a source of degradation of the human person.

Methods: In Niger, the state has only one fistula centre, located in Niamey where patients are supported. Most people receive surgical interventions in regional hospitals but they are not followed up. Consequently, they must be operated on repeatedly. To provide support to Niger, the World Fistula Program and Serving in Mission (SIM) in Niger have teamed up to open a fistula centre located inside the SIM Danja Health and Leprosy Centre in 2011. Several women with this disease have benefited from the services of the Centre. To better understand the challenges that face those with this disease and the hopes they feel, direct interviews were conducted with 15 women in the Danja Fistula Centre. Questions asked were about the history of the disease, stigma, discrimination, welfare, and human rights. A focus group was conducted to validate the synthesis of key information about the questions.

Results: The 15 women included 10 from the region of Maradi, 2 from Zinder region, one from the Tahoua region and one woman from Nigeria. All 15 women had heard on the radio of the existence of the new fistula center. The current age of the women interviewed is between 19 and 58 while they were between age 16 and 37 when they contracted the disease. Only one woman did not remember her age and said she contracted the disease after her first pregnancy. Of the 15 women, 6 received surgeries more than 2 times, 3 have received surgery once and 6 never had surgery. Of the 15 women, 8 were reputed by their husbands while 7 others have the support of their husbands. Three out of 15 women are stigmatized and discriminated against by their families and entourage while 12 have solidarity with their families and friends. All the 15 women have access to human rights throughout their stay in the fistula center (health, water, food, accommodation, protection, literacy, learning of trades and business, advocacy for contact with their husbands and family members).

Conclusion: Suffering from fistula is a form of rejection by one’s closest family and friends. To support the victims of this disease is to restore lives. All 15 women feel strong and safe when they get together. They suffer from the same disease. The Danja Fistula Center allows them to live in harmony, forming a community of women who support each other and develop dynamism to face the challenges and enjoy their human dignity. Therefore we shall all come together to fight all the causes and consequences of stigmatizing diseases forever. Behavioral changes must take place first of all in marriage, family and the community in general. This fight is undoubtedly necessary in a poor country like Niger.

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FACORS INFLUENCING THE MOTIVATION OF NORTH INDIAN PATIENTS WITH INTRINSIC MINUS HAND OPTING FOR RECONSTRUCTIVE SURGERY

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Introduction: India has been endemic for leprosy for centuries, and though the country declared elimination in 2005, there is huge burden of people affected by leprosy with deformity and disability. Various deformities of eye, hand and foot occur in leprosy patients due to involvement of the peripheral nerves. These deformities which occur in leprosy patients have an impact on the activities of daily living of an individual. There are a number of patients who would benefit from reconstructive surgery for reversible problems. Yet in spite of the backlog of patients, who need surgical means to correct their disability many affected people do not come for awa of this service.

As far as hand deformities are concerned, deformity due to ulnar nerve involvement is most common, which cause the intrinsic minus deformity? Due to this, various components of the hand activity are affected, ranging from loss of grip strength, altered pattern of grasp, difficulty in addition of thumb and many others. This result in difficulties in putting a key in a lock, in eating, holding a glass, writing and other such ordinary tasks. Further, culture plays an important role, effecting the perception of the difficulties in the patient's context.

Methods: This study was done on the basis of the data collected from TLM community hospital Nandnagari. In this study an open ended questionnaire was designed, which included questions regarding difficulty in doing the activities of daily living and also questions about whether patient thinks that he needs to undergo tendon transfer surgery to improve the hand function or he is satisfied with the current condition of his hand. This study also focuses on the motivational aspect of the patients to undergo tendon transfer for the correction of the deformity of the hand after motivation.

Results: Most of the patients had difficulty in activities of daily living. But interestingly, some north Indian patients with intrinsic minus hand did not experience any difficulty in activities of daily living even in presence of the visible deformity. Out of 89 patients who were interviewed, 62 were males and 29 were females. All the participants were interviewed by the physiotherapist who was involved in treatment and management of the patients. Out of these 89 patients who were interviewed, 34 patients were of the opinion that they do not have any problem with deformity and they are comfortable with the deformity. Out of these 34 patients 23 were males and 9 were females. Further, all these 34 patients were not motivated to undergo reconstructive surgery. Further out of remaining 55 patients, 32 felt that they have some problem with activities of daily living, but they are fine with deformity and can manage their day to day activities but they want reconstructive surgery only for good appearance. Remaining 23 patients were felt that they have problem in activities of daily living and were motivated to undergo reconstructive surgery.
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Presentation Time: Thursday 19/09/2013 at 12:40 – 12:50
Abstract Topic Name: Reconstructive Surgery
Presentation Screen Number: 1
Presenter: Dr Atul Shah

RECONSTRUCTION OF SOLE OF THE FOOT FOLLOWING PLANTAR ULCERS

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Introduction: The sole of the foot has gained more importance as it supports body weight and allows humans to stand and walk. With changes in the bony arch over the evolution in primates, the soft tissues also acquired properties like non-shearing and padding. Despite these specific properties for the large ulcers in leprosy instead of other procedures amputations were preferred. Now that we have an armamentarium of procedures for reconstruction amputation should be considered last resort. The author has designed and developed several reconstructive methods for the defects on the sole of the foot, be it leprosy, trauma or disease.

Methods: Flexor digitorum brevis myocutaneous flap for reconstruction of heel was first described for leprosy by author in 1985. The defects on the forefoot, particularly under the metatarsal heads were not considered amenable to reconstruction on account of high recurrence. In 1988, author described the neurovascular island pedicle flap for 1st metatarsal head defects with donor area being lateral aspect of the great toe. Good results were obtained but flap was too complicated to be done by general surgeons or even plastic surgeons unless they have seen or gained experience. Similarly, after follow up of few cases of muscle and myocutaneous flaps author came to conclusion that desired padding was not obtained and intervening muscle fibrosed with pressure. At the same time, the number of ulcer cases in need of reconstruction was daunting to be tackled by specialists. Therefore, author developed distally based transposition flap from the medial side of the great toe for covering the defects of 1st metatarsal region. For the rest of the forefoot areas a y v advancement flap is considered a good replacement. Going down to lateral defects on the sole again transposition flap from the instep area was found to offer the best solution. For the established cases reside. Among the techniques simplest seems to be gold implants. These include dynamic and static procedures. The dynamic procedures include temporalis musculofascial sling using either temporalis fascia or fascia late from thigh. Author has also described Levator Palpebræ Superioris weakening procedure to release tension of opposing muscle and enable the eyelid to close. The static procedure includes tarsorrhaphy and gold implants. The gold implants were locally made and kindly provided by Novartis Comprehensive Leprosy Care Association for 9 patients. All procedures can be performed as camp approach and has potential to prevent blindness. Secondary operation of tightening lower eyelid has also been performed where necessary.

Results: By and large in the traditional surgery, temporalis musculofascial sling has given good results in closing the eyelid though reeducation exercises are required. As emergency tarsorrhaphy seems to be a better alternative to heal corneal abrasions. While LPS weakening operation has given 50% closure of eyelid enough to cover cornea, gold implants have better results with less complications of recurrence like in the former.

Conclusion: In conclusion, national health program needs to take up the management of lagophthalmos as emergency to prevent blindness, particularly in leprosy colonies where many of these established cases reside. Among the techniques simplest seems to be gold implants wherever available followed by tarsorrhaphy and sling or LPS weakening in young patients. Concurrent procedures on lower eyelid should not be neglected.

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Presentation Time: Thursday 19/09/2013 at 12:50 – 13:00
Abstract Topic Name: Reconstructive Surgery
Presentation Screen Number: 1
Presenter: Dr Atul Shah

CORRECTION OF LAGOPHTHALMOS IN LEPROSY

A. Shah 1,*

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Introduction: Lagophthalmos is defined as the inability to close the eyelids completely. Closing of the eyelid is crucial to maintain lubrication during blinking and keeping eye moist. In lagophthalmos this process is impaired causing exposure of the cornea, dryness, redness, irritation and watering. Dryness of cornea leads to ulcerations opacity and blindness. In long standing lagophthalmos even lower eyelid gets affected causing ectropion and further complications. In leprosy the affection of facial nerve gives rise to lagophthalmos. It is necessary to correct it as soon as possible to prevent eventual blindness.

Methods: If treated within six months of its occurrence with steroid therapy there are good chances of recovery. In an established case surgical corrective procedures may be required. These include dynamic and static procedures. The dynamic procedures include temporalis musculofascial sling using either temporalis fascia or fascia lata from thigh. Author has also designed Levator Palpebræ Superioris weakening procedure to release tension of opposing muscle and enable the eyelid to close. The static procedure includes tarsorrhaphy and gold implants. The gold implants were locally made and kindly provided by Novartis Comprehensive Leprosy Care Association for 9 patients. All procedures can be performed as camp approach and has potential to prevent blindness. Secondary operation of tightening lower eyelid has also been performed where necessary.

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Conclusion: In conclusion, national health program needs to take up the management of lagophthalmos as emergency to prevent blindness, particularly in leprosy colonies where many of these established cases reside. Among the techniques simplest seems to be gold implants wherever available followed by tarsorrhaphy and sling or LPS weakening in young patients. Concurrent procedures on lower eyelid should not be neglected.
INTRODUCTION: In India approximately 130,000 new cases of leprosy are diagnosed every year and out of this 1.8 percent of patients have visible deformity of eye, hands and feet. Tendon transfer is the only option available for patients having visible deformities like claw hand, median nerve paralysis, z-thumb, wrist drop, foot drop and lagophthalmus. Reconstractive surgery helps restore the function and appearance of affected parts which in turn helps bring a change to the patient’s self-confidence, social, economical and psychological status. However it is seen that not all patients who have good post operative results have been able to be fully rehabilitated into the community. This study helps us find reasons which affect the patient’s return to their society and work place after tendon transfer surgery. This paper will also help identify the social and psychosocial factors that affect the patients post operative rehabilitation.

METHODS: In this study 241 patients who underwent corrective surgery for Ulnar Nerve paralysis, Median nerve paralysis, Triple nerve paralysis, wrist drop and foot drop from The Leprosy Mission community hospital, Nandnagri in 2010-2012 were recruited. They were followed up and were interviewed by a trained therapist through a predesigned questionnaire. Details on the changes brought about by the surgery in their workplace, society, self esteem were recorded and analyzed.

RESULTS: Self stigma of having leprosy, non supportive family, unemployment, type of occupation, illiteracy and the selection criteria of the patients for surgery were the factors that were identified through the study. The factors identified were determining and influencing the patient’s post operative outcome. However the study also brought out the need for having an individual assessment protocol for each patient prior to the surgery.

CONCLUSION: This study clearly reflects that surgical rehabilitation after tendon transfer surgery alone doesn’t help the patient return to the mainstream. An individual tailor made comprehensive rehabilitation plan should be in place for each patient post operatively taking into consideration all social, psychological and economical aspects for a good and effective rehabilitation program.

INTRODUCTION: Immobilization after tendon transfers has been the conventional postoperative management in leprosy affected people. Several recent studies indicated beneficial effects of an immediate early active motion after tendon transfers for claw hand deformity in comparison to conventional immobilization. In this study, we performed retrospective chart study to test the hypothesis that immediate postoperative early active motion of the hand after tendon transfer for claw hand deformity will achieve outcomes better than those of the standard practice of cast immobilization.

METHODS: Retrospective analysis was performed in 49 cases of tendon transfers for claw hand deformity followed by immobilization in a cast for 3 weeks performed in 2008 to 2010. Therapy began on the 22nd postoperative day for this group. Retrospective records of 57 cases of tendon transfers for identical claw hand deformity with immediate early active motion of hand on second post operative day performed in 2011-2012 were used for comparison. The most common procedure was Lasso with Flexor Digitorium Superficialis middle finger transfer in 83 (78.3%) cases out of 106 cases in both groups.

RESULTS: There was no incidence of tendon insertion pullout during immediate early active motion after tendon transfers for claw hand deformity. Deformity correction, range of motion, swelling, pain, dexterity, hand strength and morbidity at the time of discharge from hospital was better with the immediate postoperative active motion. The immediate active motion also reduced rehabilitation time by an average of 8 days minimizing the duration of admission in comparison to the conventional immobilization group.

CONCLUSION: We found that the immediate early active motion of hand is safe in reconstructive surgery of claw hand in leprosy affected people. It has a better outcome compared with those of conventional immobilization, with the added advantage of earlier pain relief, quicker restoration of hand function, and early discharge from hospital reducing the morbidity. Patients’ satisfaction for cosmetic and functional result was much better in the group with the immediate early motion of hand.

INTRODUCTION: The leprosy is an endemic infectious disease, due to the bacillus of Hansen, to the skin and nervous tropism. The ulnar nerve, which passes behind the elbow, is the nerve most frequently hypertrophied in the leprosy. The goal of plastic surgery is: to correct four intrinsic claws, to compensate for the total intrinsic paralysis of the thumb and possibly, for the strength of the crow bar thumb - index. The objective of the present work is to present our local experience.

METHODS: We use in the correction of the ulnar paralyses of the leprosy the technique of Lasso of Zancolli (Zancolli E.A. Correcção de la garra digital para paralisia intrínseca. La operación del "laza". Acta Orthop. Latina Am, 1974, I, 65-72). The hand must be immobilized in flexion for 3 weeks after operation. After that, we begin mobilization (reeducation). We illustrate our local experience through certain patients as we operated in rural zones in Democratic Republic of the Congo.

RESULTS: The long-term results are also very satisfactory. The patients recuperate the movements of fingers. We have also the return of sensation. Functional outcome, especially the function of fingers, is success. The technique of Lasso of Zancolli is easy to experiment in our areas with successful result. We don’t use the materials of microsurgery. This is a good thing for African surgeons.

CONCLUSION: In our working conditions with limited resources, the techniques which we use are simple and easily reproductive. Indeed, it is about Congolese surgeons operating Congolese leprosy patients. We thing, it is in the first time, a local experience.
Introduction: 
Le travail est en progression, mais reste limité à quelques régions. Les malades ne consultent pas d'eux-mêmes, il faut aller les chercher; d'où l'acceptation difficile à cause de la longue hospitalisation. Enfin nous avons connu deux paralysies iatrogènes comme problèmes dépressifs.

Les données actuellement présentées concernent des malades qui ont été opérés de chirurgie septique, 28 de chirurgie palliative et 1 de décompression.

Seul le nombre de chirurgies décompressives a augmenté, passant de 1 de 2007 à 58 de 2012.

Conclusion: 
Les progrès énormes sont visibles pour des bénéficiaires de ces interventions médicales.

Longue hospitalisation. Enfin nous avons connu deux paralysies iatrogènes comme problèmes dépressifs.

L'objectif de cette présentation est de montrer les progrès réalisés dans la réhabilitation physique et sociale des malades en RDC, ainsi que les perspectives de développement.

La chirurgie lépreuse a été (ré-) introduite et restructurée avec les Médecins Sans Frontières. Quelques interventions étaient effectuées par des équipes des Médecins Sans Frontières dans certaines régions du pays. La chirurgie lépreuse a été (ré-) introduite et restructurée avec les Médecins Sans Frontières dans certaines régions du pays.

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Discussion: 
Ce travail est en progression, mais reste limité à quelques régions. Les malades ne consultent pas d’eux-mêmes, il faut aller les chercher; d’où l’acceptation difficile à cause de la longue hospitalisation. Enfin nous avons connu deux paralysies iatrogènes comme problèmes médicaux.

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THE ROLE OF RELAPSES ON MAINTENANCE OF LEPROSY DETECTION RATES IN A HIGHLY ENDEMIC MUNICIPALITY IN THE STATE OF MATO GROSSO, BRAZIL

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Introduction: Rondonópolis, a municipality of the state of Mato Grosso, Brazil, shows high endemicity for leprosy and low relapse rates. No previous studies addressed the causes of maintenance of high detection rates, or effectiveness of multidrug therapy (MDT) in this site. Thus, the revision of data on diagnosed leprosy cases and all relapses could help to understand the causes for maintenance of the endemic and improve actions towards the control of the disease. The objective of this work is to characterize the leprosy relapse cases diagnosed between 1994 and 2010.

Methods: Clinical records of all leprosy patients diagnosed and treated between 2000 and 2008, registered in the Health Reference Unit for leprosy of Rondonópolis and in the National Register Disease System (SRAN, Ministry of Health), were selected and evaluated. For the periods between 1994 to 1999 and 2009 to 2010, only the cases which had more than one entry into the system were selected. The records were reviewed for clinical, laboratory and treatment regimen data collection. Information on realtional episodes or other entries reported on medical records, at any time after diagnosis, were also collected. A database of patient's information: as personal and demographic data, data of diagnosis, date of discharge from medication, clinical evolution, therapeutic regimen, number of doses administered, specific reaction to drugs of the MDT, as well as results of laboratory tests (histology, skin smear and Mitsuva test) was built. Data was analyzed using descriptive statistics.

Results: A total of 1,863 records were evaluated (92.6% adults; 7.4% under 15 years old); mean age was 38 years; 518 individuals had been treated with paucibacillary (PB) MDT, 886 with multibacillary (MB) MDT, and 158 with other therapeutic regimens; 585 (31.4%) patients had episodes of type 1 or type 2 reaction. The average biopsy bacilloscopic index of histological sections was 1.62 (± 1.736). Among individuals treated with other therapeutic regimens, there was a predominance of patients treated with single dose of rifampicin, ofloxacin and minocycline (ROM), followed by rifampicin plus clofazimine, and monotherapy with dapsone. From a total of 151 individuals who showed reactivation of leprosy, 27.1% had been treated with PB and 20.5% with MDT/MB and 52.3% with other regimens. Among 24 out of 41 individuals who were treated with MDT/MB, only 8 were true relapses; 16 reactedivate as MB, and 17 took drugs irregularly. Among 31 individuals treated with MDT/MB, 16 relapsed, and 8 took drugs irregularly. The real percentage of relapses for the period is 1.28%.

Conclusion: Patients showed a low rate of relapses, probably due to the high efficacy of MDT. However, this was not enough for the control of the endemic situation at the municipality of Rondonópolis. The bacterial persistence may have significant role in the relapse, since one would need knowledge of related to leprosy in them from the city of Jiaxing, Shaoxing, Ningbo, Shangyu, in Zhejiang province. We should intensify propaganda to improve the awareness rate in the rural residents.
Compared to the special course and leaflet, the way of knowledge match game with gifts was more effective, and it was a better way for leprosy health education among middle school students.

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REPORT OF RPOB (RIFAMPICIN) MUTATION IN A NEW CODON IN CLINICALLY SUSPECTED DRUG RESISTANCE LEPROSY CASES: A STUDY FROM EASTERN INDIA

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Introduction: Drug resistance will be a serious impediment during the present scenario of dramatic decline in the prevalence rate to <1/10,000 which has been attained throughout the world. The emergence of multidrug resistant M. leprae strains which has been reported from south east Asia poses a serious threat for control of leprosy. Therefore, surveillance for drug resistant M. leprae has been initiated in several countries. The present study was initiated in screening post-MDT relapse cases for mutations in rpoB and folP genes of M. leprae for finding of drug resistance in leprosy.

Methods: A total of 50 relapse leprosy cases from PG Hospital, Kolkata, West Bengal were enrolled in the study. All patients were clinically classified as multibacillary cases of leprosy and resistance in leprosy.

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were confirmed as relapse cases by findings of appearance of new skin lesions and increase in bacteriological index (BI). Skin smears were obtained for estimation of BI and biopsies were obtained in 70% alcohol for extraction of DNA. The extracted DNA was amplified by M. leprae-PCR targeting rpoB and folA gene region. After detection of amplification on a 2% agarose gel by electrophoresis, the amplicons were outsourcing for sequencing and the quality trimmed sequence data is aligned using (Basic Local Alignment Search (BLAST) Tool) from NCBI. Every single nucleotide base in the sequence is aligned to reference sequence and identity gaps were determined. Later in-silicoanalysis was done to identify the changes in the translated protein sequences.

Results: Our results revealed a mutation at the base pair position 2275322 where G is replaced by C in the whole genome of M.leprae which corresponds to the coding region of rpoB gene (2775bp-2275322 to 2275506). This is a non-synonymous missense mutation in CAG codon which brings about a glutamic acid to histidine change in the amino acid sequence of rRNA Polymerase Beta subunit of M.leprae at the position 442 (Glu442His), a region specific for rifampicin interaction. This was observed in 2 out of 50 patients. None of the patients showed any mutation in the folP region indicating absence of dapsone resistance in these relapsed patients.

Conclusion: The present study has noted for the first time a mutation in codon coding for amino acid at the region 442 in rpoB gene (279bp - 308A) and a single nucleotide base in the sequence is aligned to reference sequence and identity gaps were determined. Later in-silicoanalysis was done to identify the changes in the translated protein sequences.

Association of Single Nucleotide Polymorphism (SNP) in Cytokine Genome with Different Entities of Leprosy and Its Role in Disease Susceptibility in Eastern India.

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Introduction: Leprosy is a chronic granulomatous disease caused by obligate intracellular parasite Mycobacterium leprae. Leprosy provides a unique opportunity to investigate the functions of interplay between T cell subsets i.e. TH1 and TH2 subsets in relation to their cytokine secretion profile since it is postulated that it is the distinct pattern of cytokines which determines the resistance or susceptibility to infection. Single nucleotide polymorphisms (SNPs) are considered a major source of biological variation in human populations. The pattern of cytokine polymorphism in leprosy patients may have a role in their susceptibility to infection.

Methods: Genomic DNA was extracted from PBMC layer by standard Phenol chloroform technique from a study group of 246 leprosy cases and 112 healthy controls and All polymorphisms were typed using amplification refractory mutation system polymerase chain reaction (ARMS-PCR) method

Results: In the present study, TNF-α (p = 0.0006, OR = 1.985) allele and TNF-α -238 G (p = 0.0004, OR = 2.502) IL6 -174 C (p = 0.0004, OR = 1.908) IL10 -592 C (p < 0.0001, OR = 2.469) IL10 -1082 A (p = 0.0004, OR = 2.013) found significantly associated with M. leprae infected patients compared with healthy controls. Moreover, No significant association was observed in IFN-γ +874 T (p = 0.436, OR = 0.870) with the leprosy group.

Conclusion: TNF-α -308 A, TNF-α -238G, IL10 -592C, IL10 -1082A and IL6 -174 C allele are significantly associated with susceptibility and occurrence of leprosy whereas, IFN-γ +874 T is found to have no role in occurrence and susceptibility of leprosy in Indian Population based at Kolkata, West Bengal, India.

LEPROMATOUS LEPROSY AND PERIANAL TUBERCULOSIS IN THE SAME PATIENT

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Introduction: Infections with intracellular pathogens such as Mycobacterium leprae and Mycobacterium Tuberculosis in most cases are controlled by the cell-mediated immune response, is based on a CD4 + TH1 cells. Leprosy is a more prevalent cause of cutaneous infections as compared tuberculosis, and their co-infection is extremely rare.

Methods: We report an association of lepromatous leprosy and perianal tuberculosis, without the presence of any previous or active pulmonary infection, in man immunocompetent.

Results: A 59 year old male patient was admitted with 6 months history of erythematous plaque, and non healing suppurative lesion perianal ulcer. He was under therapy with prednison 40mg daily without healing. Dermatological examination revealed disseminated erythematous papules in the upper limbs, and perianal ulcer fagedenic accompanied by inguinal lymphadenopathy. Skin biopsy showed a dense histocyte dermal infiltrate, consisting of foamy macrophages with globi of bacilli and fite staining revealed the presence acid fast bacilli, suggestive of lepromatous leprosy. Results of polymerase chain reaction (PCR) DNA analysis from skin samples were negative for M.tuberculosis but positive for M.leprae, and a ulcer biopsy specimen using the Lowerstein–Jensen medium were positive for M.tuberculosis. The patient was diagnosed as having simultaneously lepromatous leprosy and perianal tuberculosis. The treatment recommend of lepromatous leprosy with thalidomide, dapsone, rifampin, clofazimine and of tuberculosis with isoniazid, rifampin, ethambutol and pyrazinamide.

Conclusion: Susceptibility to co-infection with lepromatous leprosy and perianal tuberculosis likely depends on multiple factors such, low socioeconomic status, poor nutrition, chemo-immunosuppression and host immune response. Although both mycobacterial infections are endemic in developing countries like Brazil, the co-infection has been reported in the last decade. Many studies have pointed out the genetic predisposition of the host to the development of diseases such as leprosy and tuberculosis. It is suggested that human genetic factors may influence the acquisition of both infections and clinical course of these diseases.

PILOT TRIAL: METHYL SULPHONYL METHANE TREATMENT IN ERYTHEMA NODOSUM LEPROSUM

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Introduction: Erythema nodosum leprosum (ENL) is a systemic immune complex reaction, in which antibody-antigen complexes may be deposited in various tissues, leading to vasculitis, may occur in multibacillary leprosy patients. The immunopathology is not fully understood, but the reaction is known as a TNF-α-mediated process. The severity of the condition, the potential complications, the limited treatment options and the recurrent nature make this condition very difficult to manage. The limited current treatment options with high level of morbidity and chronic nature of the condition make the search for treatment alternatives imperative. Previous investigation showed that Methyl Sulphonyl Methane (MSM) has strong anti-TNF-α properties in vitro. Potentially, this would make MSM suitable for treating TNF-α-mediated conditions, such as ENL reaction. Objective of this study is to establish whether MSM is effective for treating the clinical signs and symptoms of recurrent ENL reaction in multibacillary leprosy patients.

Methods: In this study all multibacillary patients admitted for at least a second episode of severe ENL reaction are potentially eligible for the study. The intake of subject proper to inclusion and exclusion criteria until 10 subjects have been enrolled. A standardised history using a checklist will be taken from all patients admitted to the study. A careful physical examination will be carried out looking for skin signs, signs of sensory or motor neuropathy, and other known complications of ENL. An ENL reaction severity scale will be completed at each examination. This will include a basic neurological examination. Nerve function assessment include motor nerve function using voluntary muscle tests (VMT) and Sensory nerve function using the Semmes-Weinstein monofilament test (SFT). All impairments will be recorded. Ten millilitres of blood will be taken
for laboratory investigations at certain intervals (Day 1, 7, 63) for TNF-α and routine blood examination on day 1, 7, 14, 56, 112. All patients in the study will be given MSM in a dose of 0.1 g/kg bodyweight daily in two divided doses in addition to World Health Organization (WHO) Multi Drug Treatment (MDT) and or additional clofazimine, if a patient was already taking this when the new reaction occurred. After a significant improvement in the clinical condition of the patient has been observed, the dose will be tapered by 1 gram every two weeks, starting 1 week from the start of MSM treatment. Treatment will be stopped completely 2 weeks after reaching the 1 g/day level.

Results: There were two from ten patients showing improvement of ENL reaction after treated with MSM. Eight patients had been dropped out on day 3 and 5. In these two improving patients revealed high level of TNF-α, and this value decreased along with lessening of ENL severity scale. In the first patients there were increasing of ENL severity scale within MSM tapering off, so that this patient had been applied with full dose of MSM repeatedly and tapered off. One other patient was still in good condition during the follow up. Eight patients who showed normal value of TNF-α had been dropped out due to increase of ENL severity scale. There was no alteration of MFT and VMT examination during the study.

Conclusion: This finding showed that MSM treatment can be applied in ENL with high level of TNF-α, and also concordance to its mechanism of action as an anti-TNF-α. Further research with minimum sample size is required to clarify this findings.

Methods: Multibacillary leprosy patients who currently on or released from MDT and suffering from at least second episode of ENL (type 2) reaction, were taken blood samples for serum TNF-α on day 1, 7, 63, and serum cortisol measurement on day 1 before they were given 0.1 g/kg bodyweight MSM daily in two divided dose. The dose of MSM will be tapered off by one gram every two week starting one week from the start of MSM treatment. Motor nerve function / voluntary muscle testing (VMT), sensory nerve function using Semmes-Weinstein monofilament test (MFT) and ENL reaction severity were assessed daily on the first week, and continued once every two weeks. Patients with no improvement in ENL signs and symptoms within 7 days were dropped out. Patients who suffered from worsening of ENL reaction from mild to severe, worsening sensory impairment (SI), worsening motor impairment (MI), having new evidence of nerve damage even after the completion of treatment.

Results: 206 patients with multibacillary leprosy were evaluate, and 59,2% developed erythema nodosum leprosum. Patients ages at the time of sample collection varied between 12 and 86 years; majority of patients were aged between 40-59 years old and two patients were under 15 years old. Most cases, 68.9% developed three episodes of the erythema nodosum leprosum, and 8% of these patients developed before reaction and 65% during, and 30% after treatment. The episodes occurred between one and 17 times by patients. From these patients, 16,39% developed once, and 17.2% seven episodes and 49.77% did not develop erythema nodosum leprosum, and the IB (baccilli index) was considered high, above of three +.

Conclusion: Leprosy reactions are acute episodes of clinical inflammation occurring during the chronic course of disease. They pose a challenging problem because they increase morbidity due to nerve damage even after the completion of treatment. The results suggest that the high numbers of patients with ENH and several episodes in the same patients, were most frequent in the male with multibacillary leprosy and with higher bacilli index (>3); the high occurrence after treatment was completed revealed the necessity patients’ periodic examination.

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to 2011 we can conclude that 2009 was the biggest consumption year and in 2011, year of the RDC publication, we could observe a 74,8% reduction in the drug consumption.

Conclusion: The results showed that the severity of the new legislation (RDC 11) regarding to the control in the prescription and in the distribution of the drug conducted to an expressive reduction in the consumption of Thalidomide drug in Brazil. Consumption decreasing could be observed already in 2010, in year in which occurred a wide debate among the actors involved in the construction of the new legislation.

P-492

Abstract Topic Name: Eye in Leprosy
Presentation Screen Number: 3
Presenter: Saiabaa Alampur

OCULAR SURFACE DISORDER DIAGNOSIS AND MANAGEMENT IN LEPROSY – CURRENT CONCEPTS

S. G. Alampur 1, A. S. ALAMPUR 1,2

1 OPHTHALMOLOGY, SIVANANDA RAHABILITATION HOME FOR THE LEPROSY, 2 OPHTHALMOLOGY, SAIJYOTHI EYE INSTITUTE, Hyderabad, India

Abstract: The cornea and conjunctiva constitute the Ocular Surface. The tear film present on this surface will protect the Ocular Surface from infections and Foreignbodies apart from helping in the clarity of vision and comfort to the eye. The dry eye is a common condition in Ocular leprosy. The main contributing factor is the lowered blink rate and incomplete blinking. If this condition is undiagnosed and undertreated can lead to blindness. The defect in the tear film is responsible for development of blindness in ocular leprosy.

Introduction: We have studied Ocular Surface Disorder in ocular leprosy, incidence, diagnosis, prevention and management to prevent blindness. This study is done at Sivanda Rehabilitation Home for Leprosy where there are about 500 inmates and regular out patients visiting the Institute as this is one of the referral centers for Leprosy.

Methods: The Ocular Surface Disorder the sight threatening lesion occurs in both types of leprosy, however it is more common in paucy bacillary.

In our study we have examined total 330 patients (Males: 120, Female – 110). They are either inmates of Sivanda Rehabilitation Home for the Leprosy or out patients attending Sivanda Rehabilitation Home for the Leprosy, state level referral hospital. All these patients are subjected for detailed examination of eyes visual acuity, slit lamp examination, corneal sensations, tear film breakup time, Schirmer test, Rose Bengal test and also the blink reflex. We have also observed the eye lid closure. While taking history we have taken the environmental factors because majority of these patients are working in the fields, construction companies and industries.

Results: The Ocular leprosy there is reduced corneal sensations, reduced blinking and incomplete closure of the lids. These are all the factors contributing to the development of Ocular Surface Disorder. We have studied 330 patients of Sivanda Rehabilitation Home for the Leprosy and some out patients. All of them are subjected for complete ophthalmological examination. They had Ocular Surface Disorder and were given lubricating drops.

In Ocular leprosy the sink mechanism for vascular endothelial growth factor C, vascular endothelial growth factor D preventing them from binding to vascular endothelial growth factor 2 keeping corneal avascular is disturbed in Ocular Surface Disorder resulting in vascularisation.

The Carbamoylcellulose is used in early cases. It has binding capacity of corneal epithelial cells, increased goblet cell, promotes corneal cell migration. The lacrimal plugs have no role in these cases, as it will not treat the underline cause. Cyclosporine A has got the capacity of treating the underline cause. Carbamoylcellulose when exposed to light, dissipates into sodium chloride and water, natural components of tears. Ocular leprosy patients are given Carbamoylcellulose during the day and gel is applied during the night depending on the severity of Ocular Surface Disorder.

Conclusion: Ocular Surface Disorder is very common in ocular leprosy is often underdiagnosed and undertreated. Today continuum of treatment is available to prevent blindness in Ocular leprosy.

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Presentation Time: Thursday 19/09/2013 at 13:50 – 14:00
Abstract Topic Name: Eye in Leprosy
Presentation Screen Number: 3
Presenter: Saiabaa Alampur

SURGICAL EXPERIENCE IN OCULAR LEPROSY

S. G. Alampur 1,2, A. S. ALAMPUR 1,2

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Abstract: Intraocular surgery in Leprosy can’t be performed like in normal individuals. Apart from regular eye examination like Lids, conjunctiva, cornea, anterior chamber, iris, pupillary reactions including fundus examination. It involves detailed pre-operative examination – Blink reflex, Tear film assessment, corneal sensation, AC depth, pupillary reactions history of cortisone intake in addition to Intraocular surgery in Leprosy patients need special attention.

Some of the cases may have associated keratitis, thick posterior synchiae, treated chronic iridocyclitis, complicated cataract with IOP.

The problems the surgeon likely to face are, reduced blink reflex, reduced mucin content, reduced corneal sensations and in the post-operative period rubbing the eyes with infected hands and poor compliance. They need more follow-up, more so in complicated cataracts.

The surgeon also faces the problem of patient compliance for frequent check-up.

Methods: After careful examination and assessment of the cases we have selected 500 cataract cases for operations, 340 males, 160 females. All these patients had negative skin test and healed ulcers in the body. All of them were given anti biotic eye drops one week prior to the operation. The age group of these patients from 30 years to 65 years.

We have performed 500 cataract operations (340 male + 160 female). The 10 cases were cortisone induced and 25 were complicated cataracts due to uveitis. The small incision cataract surgery was done in 410 patients with PMMA lens implantation and 90 patients were performed Phacoemulcification with foldable IOL from November, 2008 to October, 2012. We have done small incision cataract surgery with PMMA lens implantation under local anesthesia in 410 patients and Phacoemulcification with foldable iol implantation in 90 patients under topical anesthesia.

In the post operative period antibiotic eye drops for used for 10 days, cortisone eye drops for 30 days, methyl cellulose eye drops were used for one month. In 35 cases there was need to use tropicamide eye drops.

They have been followed up for one year. They were subjected to slit lamp examination – cornea, A.C., aqueous flare, iris and visual acuity. The post operative use of cortisone was cautiously done.

Results: The total number of cataract operations with IOL was 500. The follow-up was done up to 1 year. The visual recovery was 6/6 to 6/18 in 430 cases. The vitreous haze was seen in 20 cases. Inflammation was seen in 40 cases and physisis seen in 10 cases.

Conclusion: One needs to be cautious in performing intra ocular surgeries in Leprosy and need to do more follow-up to prevent damage. This paper deals with detailed guidelines for pre-operative check-up and post operative follow-up in ocular leprosy. This paper will be presented along with video.
THE GENDER ASPECTS OF THE INFLUENCE OF PHENOTROPIL ON THE PSYCHOEMOCIONAL STATUS OF RATS UNDER THE EFFECT OF DAPSONE

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Introduction: Over sixty years of history dapsone (4,4’-sulfanilamidobenzene) is a basic antimicrobial specimen for the treatment of leprosy. However, despite the high pharmacological activity the drug has a number of negative effects due to the formation of hydroxylamine derivatives during the metabolism. In particular, dapsone often exhibits neurotoxicity, causing mental disorders, headaches, insomnia, and the phenomenon of peripheral neuritis (Ghu G.I., Stiller M.G., 2001). Now for the correction of various forms of psychosis put into practice, in particular, iatrogenic, psychomodulators are put into practice. Among them fenotropil, characterized by a wide spectrum of pharmacological activity and high safety is of interest (Tyurenkov I. et al., 2010). The aim of this work was to investigate gender differences of dapsone-induced changes in behavior and the severity of the psychomodulating effects of phenotropil (P) in combination with dapsone (D).

Methods: The study was performed on 60 outbred rats (5-6 month); males and females. Control group – introduction to in equivalent volume of isotonic solution of sodium chloride; the second group – intragastric intoxication of D (25 mg/kg) (21 days), and the third – intragastric intoxication of D (25 mg/kg) in combination with P (100 mg/kg) (21 days). Psychemotional state was evaluated in the test "Elevated crossed labyrinth" (ECL). Statistical analysis was performed with the definition of Student’s criterion with Bonferroni’s correction.

Results: Analysis of the behavior in the test "ECL" of animals which were exposed to dapsone, indicates the formation of changes of anxious and depressive character under the influence of the drug. The presence of males and females significant differences in the direction and intensity of psychomotor changes were revealed. The activation of behavioral responses to the background of increasing of the overall level of situational anxiety was observed in females of rats. Oppression of motor and research components of behavior was observed in males of the rats on the background of D. Analysing of the behavioural activity of animals, receiving phenotropil on the background dapsone-induced changes, it was shown the ability of the drug to reduce iatrogenic manifestations of anxiety-depressive syndrome. It should be noted, that phenotropil showed expressed activity in male rats.

Conclusion: Identified gender differences in the use of dapsone and phenotropil emphasize the need to take into account the fact that the prescription of these drugs in complex is the most important in the treatment of males.

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TO ANALYZE THE RELAPSE AMONG PATIENTS TREATED WITH MULTIDRUG THERAPY IN HUNAN PROVINCE, CHINA

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Introduction: To analyze the relapse among patients treated with multidrug therapy in Hunan province, China. The multidrug therapy recommended by the World Health Organization was very effective, and the relapse rate is very low. The early detection and early treatment of relapse may be an effective measure to reduce the risk of recurrence.

Methods: To collect the data of leprosy relapse patients after treated with multidrug therapy from 1984 to 2009 in Hunan province China, and analyze relapse rate, the risk factors of relapse, clinical characteristics and so on

Results: From 1984 to 2009, there were 2766 MDT cured leprosy cases were registered in Hunan Province. There were 33 cases who were relapsed with a relapse rate of 1.19%, or 0.48/1000 years. Among 14 relapse cases with full data, the range of interval from completion of therapy to relapse was 2.0 to 25.0 years, with 3 cases after 5 years, 6 cases from 6 to 10 years, 5 cases from 11 to 25 years. The average interval of relapse was 9.43 ±6.53 years. Among 14 relapsed patients, female accounted for 28.6%, patients treated with PB regimen for 21.4%, patients with disability for 50.0%, and patients having a history of contacting with untreated leprosy patients before relapse for 50.0% patients. The delay time from relapse to be diagnosed was 2.2 ±7.3 years, and the mean bacteriological index at diagnosis was 3.1±1.8. Annual income of all 14 patients were below RMB 5000 yuan

Conclusion: The multidrug therapy recommended by the World Health Organization was very effective, and the relapse rate is very low. The early detection and early treatment of relapse may be an effective measure to reduce the risk of recurrence.
The geographical distributions of the 6 SNPs pattern were divided into two groups, namely the unique SNPs found in isolates tested in this study, as well as those derived from Honshu Island in Japan, showed 4 groups were placed in two by two table for Chi-Square test using the statistical software MATLAB, and entered in a excel data sheet. Statistical analysis of number of individuals falling into the four categories of individuals showing; both high, both low and either of the molecule high and low. These proportions can be categorically fit into either classical dihybrid ratio of 9:3:3:1 or the low. These proportions can be categorized fitting into either classical dihybrid ratio of 9:3:3:1 or the classical Mendelian ratio 9:3:3:1 was observed for LAM antibody to Ceramide, S100 and TNF in plasma, TGF, S100 in skin was a dominant feature. The high and low segregations tested for a pair of molecules against the ratios were 9:3:3:1; 9:3:4; and 12:3:1. The results were as follows: Classical Mendelian ratio 9:3:3:1 was observed for LAM IgG in plasma & CD8+ in nerves. Recessive epistasis 9:3:4 was observed for $100$ in plasma & $100$ in nerves. Dominant epistasis 12:3:1 was observed for LAM IgG in plasma & $100$ in skin. 18 molecular combinations conferred 9:7:3:4; 51 showed 15:1; and 60 were 13:3 within and between tissues.

Conclusion: This study presented a novel method of analysis of biochemical evaluations. The algorithm used for epistatic interactions of seven plasma molecules and comparing them to skin and nerve tissue molecules was quite challenging experience, however this study establishes an evidence of Mendelian and epistatic ratios, underlying protein level bimolecular interactions in the pathogenesis of leprosy.

P-399

Presentation Time: Thursday 19/09/2013 at 13:30 – 13:40
Abstract Topic Name: Genetics and Leprosy
Presentation Screen Number: 4
Presenter: Prof Ludmila Saroyants

IMMUNOGENETIC OF LEPROSY. INTERETHNIC ASPECT

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Introduction: While studying association of HLA and leprosy in interethnic aspect we identified HLA-specificities and haplotypes, associated with predisposition and pattern of disease clinical progression. The studies in “HLA and diseases” are not restricted by search for their genetic markers and HLA haplotypes of leprosy: DRB1*16-DQA1*0102-DQB1*0502/4 alleles. The associations of haplotype DRB1*16-DQA1*0102-DQB1*0502/4 with leprosy were defined both in Russian and Karakalpak populations. DRB1*16-DQA1*0102-DQB1*0502/4 have significantly decreased in Karakalpak leprosy patients, whereas decreased frequencies of DRB1*16-DQA1*0102-DQB1*0502/4 have been found compared with the control group. Risk of PB leprosy form progression has been associated with haplotype DRB1*16-DQA1*0102-DQB1*0502/4. Haplotype DRB1*16-DQA1*0102-DQB1*0502/4 has significantly high in Kazakh leprosy patients. Immunologic examination of leprosy patients included 15 tests for evaluating both inborn and adaptive immunity. Statistical differences in allelic and haplotypic frequencies of patients and controls were tested using Arleguin 2.1 (URL: http://anthro.unige.ch/arleguin).

Methods: Genotyping of HLA genes alleles of the II class (DRB1, DQA1, DQB1) and haplotypes by PCR-mSSP method was used in 3 populations of leprosy patients: Russian, Kazakh and Karakalpak, living in endemic on leprosy regions (Astrakhan region and Karakalpakstan). 255 unrelated leprosy patients (163 MB and 92 PB) and 254 healthy controls have been examined. Immunologic examination of leprosy patients included 15 tests for evaluating both inborn and adaptive immunity. Statistical differences in allelic and haplotypic frequencies of patients and controls were tested using Arlequin 2.1 (URL: http://anthro.unige.ch/arlequin).

The results of the HLA DRB1*17 and DRB1*01 are significantly high in Kazakh leprosy patients. Russian and Karakalpak leprosy patients have shown increased frequencies of HLA DRB1*16, DQA1*0102 and DQB1*0502/4 alleles. The associations of haplotype DRB1*16-DQA1*0102-DQB1*0502/4 with leprosy were defined both in Russian and Karakalpak population groups. DRB1*16-DQA1*0102-DQB1*0502/4 has significantly decreased in Russian patients and DRB1*01-DQA1*0102-DQB1*0502/4 has been significantly high in Russian patients and DRB1*08-DQA1*0102-DQB1*0502/4 have significantly decreased in Kazakh leprosy patients. DRB1*17-DQA1*0102-DQB1*0502/4, DRB1*01-DQA1*0102-DQB1*0502/4 are significantly high in Kazakh leprosy patients, whereas decreased frequencies of DRB1*16-DQA1*0102-DQB1*0502/4 have been observed in the control group. Risk of PB leprosy form progression has been associated with haplotype DRB1*16-DQA1*0102-DQB1*0502/4. Haplotype DRB1*16-DQA1*0102-DQB1*0502/4 was associated with pressure of more severe MB form of disease notwithstanding ethnic background of all the patient groups.

To identify the mechanisms of HLA genes realization, we have studied the associations between HLA II genes and different immunologic features. The research has been shown that HLA haplotypes of leprosy: DRB1*16-DQA1*0102-DQB1*0502/4 and DRB1*15-DQA1*0102-DQB1*0502/4 are associated with low reactive level of cells, namely low level of phagocytosis, proliferative lymphocyte activity on PHA and cytotoxicity activity of NK cells.

Conclusion: We identified therefore common and individual HLA-specificities and haplotypes associated with predisposition to leprosy of different ethnic groups. Considering, that DRB1*15 and 16 are constituents of serologically identified HLA DR2 specificity, earlier defined as a marker of leprosy susceptibility in different ethnic populations, it can be concluded, that this specificity is related to the universal markers of leprosy susceptibility and the highest risk of the disease is connected with the increase of haplotype frequency with these alleles. One of the mechanisms of realization of HLA-associated genetic predisposition to leprosy is association between markers’ haplotypes and factors of innate immunity, which provide innate immune resistance.
Introduction: Leprosy, as other infectious diseases, is a complex disorder. Host genetic factors have been extensively implicated in leprosy susceptibility. A genome-wide linkage study in Brazilian population pointed 17q22 as a chromosome region containing a locus for leprosy susceptibility. The MMD (monocyte to macrophage differentiation-associated) gene is located next to a linkage peak and it is a candidate gene for leprosy susceptibility since it codes a proteinexpressed by differentiated macrophages. The aim of this work was to perform a population-based association study of the MMD gene in leprosy.

Methods: We investigated five tag single nucleotide polymorphisms (SNPs) markers encompassing all the gene variation in MMD rs9910480 AA genotype (OR=0.61; CI95:0.38-0.98; p-value=0.04), both indicating a resistance association in the genotype analysis. In haplotype analysis, combining the five markers, G/G/G/G/G (OR=1.66; CI95:1.18-2.32; p-value=0.04) and G/G/G/G/F (OR=1.62; CI95:1.06-2.47; p-value=0.02) haplotypes are associated with leprosy per se. All the markers were in Hardy Weinberg equilibrium.

Conclusion: These data point MMD gene as a possible responsible by the chromosome 17 involvement in leprosy risk, as previously related, in Brazilian population. Replication studies and functional evaluations are necessary to confirm these results and to better explain the association of the MMD gene with leprosy.


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Abstract Topic Name: Genetics and Leprosy


Presenter: Ana Carla Pereira Latini

POLYMORPHISMS AT MMD GENE IN THE 17Q22 CHROMOSOME REGION ARE ASSOCIATED WITH LEPROSY SUSCEPTIBILITY IN BRASILIAN POPULATION.
EVALUATION ON THE ACHIEVEMENT OF LEPROSY CONTROL PROGRAM FOR 60 YEARS IN HUBEI PROVINCE, CHINA

W. Li 1,*, F. Zhan 1, Z. Liu 1, B. Chang 1, W. Liu 1, J. Ye 1, C. Xiong 1

1Hubei Provincial Center for Disease Control and Prevention, Wuhan, China

Introduction: To evaluate the effectiveness of Leprosy Control Program during 1949-2010 in Hubei Province, and to provide the basis for developing the 12th five year (2011-2015) Leprosy Control Program.

Methods: The data of registered leprosy cases from 1949-2010 were analyzed using the assessment indicators, including incidence, detection rate and prevalence, and also using other index such as the age, disease period, type and disability.

Results: By the end of 2010, a total of 14376 leprosy cases were registered, among which 6471 were multibacillary cases, 7905 were paucibacillary cases and 1365 had grade-2 disability. 12394 cases were cured, 138 were still active cases. The prevalence of leprosy in Hubei province was 0.023/10000. There were two counties which did not meet the leprosy elimination goal according to China elimination criteria.

Conclusion: Through the prevention and treatment for leprosy in 60 years, there are a total of 77 out of 79 counties which meet the leprosy elimination goal issued by Health Ministry (prevalence<0.1/10000). Although the remarkable success achieved in leprosy control, there is still emergence of new leprosy-out breaks. In the 12th five-year Leprosy Control Program, we follow the principle of “early detection, early treatment, early disability prevention” and take several control measures, including investigation for foci, clues and close contacts, cures reexamination, dermatology screening and so on. Moreover, it is important to increase the sentinel points for case detection, improve the training for medical staffs in related departments of comprehensive hospitals, and strengthen the health education for medical staffs in counties, countries and villages. And to extend multiple ways to detect patients and timely treatment is also important for cutting off the transmission of leprosy.

WHAT HAPPENS AT FIELD LEVEL WITH LOW CLOFAZIMINE IN THE TREATMENT OF ENL?

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Introduction: Clofazimine is an important drug in the treatment of Erythema Nodosum Lepraeum (ENL). It is freely supplied by WHO and the Novartis Foundation for Sustainable Development. However, shortages have been reported in the field, causing persons with severe ENL to remain untreated. Therefore, a study was undertaken to look at the global and national need for clofazimine, including guidelines, practice, and availability.

Methods: National guidelines and clinical practices were explored through literature, an online survey (43), expert interviews (25) and a field visit to Indonesia to obtain an overview of the difficulties to estimate needs, and practical issues in its distribution.

Results: WHO and ILEP guidelines for treating ENL with clofazimine are similar, with a small difference in treatment duration. In 20 national guidelines clofazimine is recommended for treating ENL but they vary in prescribed doses and duration, ranging from 12 weeks in India and Brazil to 24 weeks in Indonesia and Nepal, or even longer in other countries. Dose and duration of treatment vary amongst medical specialists between and within countries. Whereas national protocols are followed at field level, medical specialists often adjust it. Anecdotal evidence suggests that various countries face clofazimine shortages. 26% of respondents reported never to have shortages, but another quarter said to cut clofazimine from the MDT blister pack. In India no shortages were reported; clofazimine is available in the market. In Brazil severe shortages were reported but use is made of thalidomide. In Indonesia shortages lead to longer steroid courses. In many countries it was not possible to estimate needs, and practical issues in its distribution.

Conclusion: After harmonisation between WHO and ILEP, wider dissemination of a protocol for treating severe ENL to end users is recommended. Information to both medical staff and patients on the possible late occurrence of ENL would be a prerequisite for its surveillance. Doctors at field level face shortages of clofazimine and patients lack an optimal treatment of severe and recurrent ENL. Ensuring the availability of clofazimine at the patient level is important. The involvement of main stakeholders is needed in developing the treatment guidelines for distribution of clofazimine, and making small-scale solutions based on field conditions.

LEPROSY CONTROL PROGRAM IN CHINA: A 60 YEARS EXPERIENCE

G. C. Zhang 1,*, M. W. Yu 1

1Institute of Dermatology, Chinese Academy of Medical Science & National Center for Leprosy Control, China CDC, Nanjing, China

Introduction: After 60 years innovative leprosy control activities in China, the Chinese Leprosy Control Program reached a successful achievement. The characteristics of leprosy epidemiology in the last 60 years showed the outcome of the program activities.

Methods: Epidemiological data were collected from National Leprosy Management Information System in China. All other activities related data were reviewed from various documentations.
Methods: This cross-sectional study was conducted from 29th September, 2010 to 30th February, 2011 at different public health facilities in selected eight zones in Oromia and Amhara Regional States. Data was collected from 601 general health workers (GHW) with self-administered structured questionnaire and also through observation of the health workers’ performance. Baseline socio-demographic data, health workers’ attitude towards leprosy and their knowledge & skill in the management of leprosy was assessed. Descriptive analysis was done and factors contributing to poor performance of health workers were analysed using SPSS.

Results: The majority of health workers knew the causative agent of leprosy, but 57% of them thought it could be transmitted through touch and/or mother-to-child and 80% couldn’t correctly list the body part mainly affected by leprosy. Seventy per cent of the health workers were not able to list down the cardinal signs of leprosy, 62% couldn’t mentioning the correct duration of treatment and 71% didn’t know the patho-physiology of disability in leprosy. Only 17% of them were able to correctly list the signs and symptoms of leprosy reaction but the overwhelming majority, 97% didn’t know how to manage reaction. The level of leprosy knowledge is shown to be associated with the qualification, previous in-service training and exposure to leprosy work. About 54% of the health workers are afraid of contracting the disease while treating a leprosy patient who has deformity and/or ulcer, even if they know that the patient is on treatment. The majority of them prefer to use gloves when examining a leprosy suspect or a case and a significant but minority, 97% didn’t know how to manage reaction. The level of leprosy knowledge is shown to be associated with the qualification, previous in-service training and exposure to leprosy work. About 54% of the health workers are afraid of contracting the disease while treating a leprosy patient who has deformity and/or ulcer, even if they know that the patient is on treatment. The majority of them prefer to use gloves when examining a leprosy suspect or a case and a significant but minority, 97% didn’t know how to manage reaction. The level of leprosy knowledge is shown to be associated with the qualification, previous in-service training and exposure to leprosy work. About 54% of the health workers are afraid of contracting the disease while treating a leprosy patient who has deformity and/or ulcer, even if they know that the patient is on treatment. The majority of them prefer to use gloves when examining a leprosy suspect or a case and a significant but minority, 97% didn’t know how to manage reaction. The level of leprosy knowledge is shown to be associated with the qualification, previous in-service training and exposure to leprosy work. About 54% of the health workers are afraid of contracting the disease while treating a leprosy patient who has deformity and/or ulcer, even if they know that the patient is on treatment. The majority of them prefer to use gloves when examining a leprosy suspect or a case and a significant but minority, 97% didn’t know how to manage reaction.

Conclusion: This study showed that the majority of health workers had poor knowledge in recognition of the early signs and symptoms of leprosy, reaction and its management. The attitude of health workers was also found to be unfavorable towards leprosy suspect and people affected by leprosy. The skill of general health workers was also found to be unsatisfactory; the majority of them were unable to perform sensation testing and voluntary muscle testing. The study also showed that the performance of health workers is strongly associated with the level of qualification, in-service trainings and previous exposure to leprosy work. In order to improve the skill, knowledge and attitude of health workers, continuous training and health education on leprosy should be emphasized at pre-service and in-service levels.

POSSIBILITIES OF INVOLVING PARTNERS TO RETAIN EXPERTISE AND SUSTAIN LEPROSY SERVICES IN KURNOOL DISTRICT ANDHRA PRADESH – INDIA

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POSSIBILITIES OF INVOLVING PARTNERS TO RETAIN EXPERTISE AND SUSTAIN LEPROSY SERVICES IN KURNOOL DISTRICT ANDHRA PRADESH – INDIA
LEPROSY CONTROL IN A LOW ENDEMIC SETTING – LEVERAGING MOBILE SERVICES

Results: Strengthening Leprosy Referral Centre at Dermatology department of Medical College Hospital by establishing referral mechanism with district health system and NGOs. Build the capacity of undergraduate. Post graduate students and nursing staff of various departments in leprosy. Organize clinical reviews for various departments of Medical College like Neurosurgery, Dermatology, Community Health and Community Health and involve them in the research related to leprosy. Strengthen the ‘six government area hospitals’ located in different localities in the district in providing leprosy services (especially ulcer management). NGO located in the district should be strengthened to carry out rehabilitation activities networking with District leprosy programme and Medical College Hospital. Train Women’s forum of urban slums to suspecting leprosy to strengthen case detection activities.

Conclusion: The expertise and programme innovations are dwindling down as the magnitude of leprosy is low. With the present available tools to control leprosy the problem is continuing to remain in different magnitudes. Partners involvement is visualised to be critical in enhancing and retaining leprosy expertise at programme, academic and at community levels. This study has not only assessed the feasibility of involvement of partners in providing leprosy services but also brought out the necessity and ownership of partnership to address needs of persons affected. This study generated interest in the partners to establish a referral mechanism.

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Presentation Time: Thursday 19/09/2013 at 12:30 – 12:40
Abstract Topic Name: Detection and Treatment of Reactions
Presentation Screen Number: 6
Presenter: Viek Pai

STUDY OF RECURRENCES AFTER THALIDOMIDE IN TYPE II REACTIONS AS MAINTENANCE THERAPY

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Introduction: Thalidomide belonging to the thiazide group of drugs is well known to be useful in management of type 2 lepra reactions. Clinical Observations on the efficacy of Thalidomide as a primary drug and its role in maintenance therapy has been reported earlier in 2005 (Pai et al 2005). We report our experience on another series of patients administered thalidomide to study recurrence of reaction.

Methods: During the period from 2007 to 2011 we recruited 56 patients from those referred to field workers or physicians diagnosed with leprosy and calls attention to a type of manifestation, which, if not diagnosed and treated in time, can facilitate in developing stable partnerships with Medical College Hospital, NGO and government health facilities for establishing referral system and also involvement of persons affected by leprosy in leprosy programme.

Results: Of the 56 patients recruited, 6 patients could not be included as they defaulted and hence 50 patients analyzed (44 males and 6 females). In 12 patients Bi was < 3+ while in 38 patients Bi was > 3+. On intake and during follow up clinical scoring using Reaction score 2 was done to study severity of reactions. All patients were of moderate severity. In 25 patients ERL reaction was observed during treatment while in 25 patients reaction was observed after stopping multidrug therapy. In 22 patients thalidomide was administered as a primary line (first) of treatment while in 28 patients thalidomide was given as a secondary line (after Steroids/ Chloroquine) of drug. In 25 patients ERL reaction improved well while in 25 (50%) patients recurrence was noted. No major adverse effects were observed.

Conclusion: It was thus observed that thalidomide as an immunosuppressive and anti inflammatory drug has an important role in controlling type II / ERL reactions in leprosy and also prevents nerve damage and its consequences and ERL pain and thereby improves greatly the quality of life of leprosy patients. However still recurrence of reactions continue to pose clinical challenge which is an area of concern from a management point of view.

P-435

Presentation Time: Thursday 19/09/2013 at 13:50 – 14:00
Abstract Topic Name: Leprosy Control
Presentation Screen Number: 5
Presenter: Charles Nwafor

LEPROSY CONTROL IN A LOW ENDEMIC SETTING – LEVERAGING MOBILE TELEPHONY FOR PROGRAMMING

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Introduction: For Nigeria the challenge for leprosy control, in low endemic settings, is becoming increasingly evident. Cases are small in number and dispersed unevenly over large areas. In 2011, the 14 GLRA-assisted states located in southern Nigeria detected one thousand (1,000) cases. With a combined population of over 53 million, this amounts to a case detection rate of 1.9 per 100,000 population. One implication of this rate is that many field workers do not get to see a leprosy case for a long time. There is anecdotal evidence that some of the field workers misdiagnose leprosy as well as leprosy reactions due to declining frequency of interaction with leprosy suspects/cases. Cases are detected and managed by a limited and decreasing number of health workers. As the old crop of committed leprosy workers exit by retirement or death, there is little evidence that the new generation of health workers is able or willing to fill the gap.

The mobile phone, increasingly a ubiquitous feature of daily life in towns and cities in developing countries, can be deployed to contribute to more effective, efficient and patient-centred programming. Although our experience with this approach is quite limited, it seems to be promising.

Methods: The State TB and Leprosy Control Officer identifies three or four senior supervisors, deemed competent, to serve as members of a leprosy validation team. The mobile phone numbers of these senior supervisors and other appropriate details are made known to all the TB and Leprosy Control Programme staff. A standardized operating procedure is adopted which requires the field staff to consult with at least 2 members of the validation team by phone before registering a person as a new case of leprosy. Those with camera-enabled phones may send appropriate pictures of the lesion/affected body part to the assisting validator, to aid decision making. The whole process is explained to the patient and his/her informed consent is obtained. The same process is used for the diagnosis/ management of reactions as well as diagnosis of relapse. The state programme regularly provides funds for recharge cards for the phones of the field workers and the validation team.

Results: The rate of misdiagnosis of leprosy, reactions and relapse will be considerably reduced. Unnecessary exposure of patients to steroids would also be considerably reduced. Only very few cases would need consultation at a referral centre. Overall health seeking experience for the patient improves and the approach would prove cost-effective.

Conclusion: The constellation of low endemicity, depopulating numbers of competent field staff and wide availability of mobile phones, makes systematic and smart deployment of mobile phones a programming imperative.
Results: Three of the patients had pure neural leprosy and three had skin lesions. Clinical median nerve function impairment was confirmed by neurophysiological testing and histopathology. Both mononeuritis and mononeuritis multiples were observed.

Conclusion: This case series demonstrates an additional form of the presentation of leprosy, which, if not diagnosed and treated in time, may lead to permanent disabilities.

P-374
Presentation Time: Thursday 19/09/2013 at 12:50 – 13:00
Abstract Topic Name: Detection and Treatment of Reactions
Presentation Screen Number: 6
Presenter: Marco Frade
SEVERE NERVE DAMAGE IN MULTIBACILLAR LEPROSY TREATED WITH METHYLprednisolone PULSO THERAPY: A CASE REPORT
H. B. Triaobachi 1, L. R. Daltro 1,*, J. V. Leite 1, P. Tomaselli 1, V. D. Marques 1, N. T. Fosa 1, W. Marques Junior 2, M. A. C. Frade 1 and National Center Reference in Sanitary Dermatology of the Clinical Hospital of Ribeirão Preto-USP

Introduction: Brazil has one of the highest annual case detection rates of leprosy in the world (17,65/100,000 inhabitants), and it is characterized by high burden pockets in the North, Central-West and Northeast of the country, suggesting heterogeneous distribution of leprosy cases in Brazil. The authors report about one patient who lived in North Region of Brazil and developed an atypical manifestation of multibacillary leprosy with also severe neural compromising and incapacity by the general infection and leprosy reaction. This work searches to show the use of new sognographic nerve measures and eletroneuromiographic data to help in leprosy nerve impairment diagnosis and propose the use of the methylprednisolone pulse therapy to leprosy neuritis.

Methods: Patient 49 years-old, male, farm worker for 15 years in Rondônia (North region of Brazil), presenting paresthesia, burning sensation, associated with decreased muscle strength in hands and feet for 1,5 year. Denied contact with leprosy patients. On physical examination he was undernourished, with cutaneous infiltration and diffuse xeroderma; erythematous brownish plaques in palm and plantar regions; edema in fingers and feet like sausage; thickened auricular, ufan and fibular nerves, bilaterally, symmetrically and painless on palpation; tactile, thermal and pain hypesthesias in hands and feet.

Results: Skin smears were positive (>4+) in ears, elbows and knees. Skin biopsy revealed borderline-lepromatous leprosy and erythematous papular lesion was compatible with hansenoma. Ultrasound of peripheral nerves showed multiple hypertrophic neuropathy, with signs of neuritis in the ulnar and median nerves bilaterally. Difference between the greatest and nerve measures and eletroneuromiographic data to help in leprosy nerve impairment diagnosis and propose the use of the methylprednisolone pulse therapy to leprosy neuritis.

P-377
Abstract Topic Name: Detection and Treatment of Reactions
Presentation Screen Number: 6
Presenter: Dr Kiran Koduri
DEFLAZACORT FOR MANAGEMENT OF TYPE 1 REACTION WITH NERVE DAMAGE IN LEPROSY
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Introduction: Systemic corticosteroids remain the mainstay of therapy for Type 1 reaction with or without nerve damage. Mostly prednisolone has been used in the doses of 30 to 50 mg as a single morning dose and reducing in steps of 5 to 10 mg monthly or fortnightly over a period of six months. Its use has brought down the deformity rate in leprosy. Deflazacort - a calcium sparing, less diabetogenic and metabolically safe derivative of prednisolone (oxazolone analog of prednisone), it has less risk of bone loss, osteoporosis due to bone sparing action, less diabetogenic effect, less HPA (Hypothalamic-pituitary-adrenal) axis suppression and minimal mineralocorticoid action. Deflazacort in dermatology is considered a safe option in treating Auto immune Bullous Dermatoses, Lupus, Bullous ErythemaMultiforme, Exfoliative Dermatitis, Systemic lupus Erythematosus. Deflazacort 5mg is equivalent to 8mg prednisolone. We have now used deflazacort to treat nerve damage in Type 1 reaction. One of the limiting factors of deflazacort usage is that it is relatively expensive compared to prednisolone, the total cost of treatment for a period of six months with prednisolone would be around six dollars whereas with deflazacort the cost would be as high as 50 dollars. However due to the benefical effects such as less growth retardation, less diabetogenic effect and less HPA axis suppression and minimal mineralocorticoid action. It can become a safer option in cases with co-morbid hypertension, diabetes and also in children.

Methods: Five clinically diagnosed leprosy patients with Type 1 reaction with VMT deficit where included in the study. Voluntary muscle testing V.M.T. was performed in all cases. For each nerve, one representative muscle was considered.Abbductor minimi for ulnar, abductor pollicis brevis for median nerve was considered. Voluntary muscle testing V.M.T was performed in all cases. For each nerve, one representative muscle was considered. All cases were put on Deflazacort 36mg to 60mg starting dose reduced in a step wise over a period of six months. Physiotherapy and Health education with regard to care of hands, feet and eye was given.

Results: The results were based on end result of V.M.T. findings and lid gap measurement. Out of total 11 nerves seven had full recovery with V.M.T of 5/5, two had V.M.T of 3/5 and in one nerve there was no improvement. No serious side effects were encountered.

Conclusion: Deflazacort has been found to be a safer option for treatment of nerve damage in Leprosy Type 1 reaction cases. However due to relatively higher cost involved with Deflazacort, it may be considered in a select group of patients with co-morbid hypertension /diabetes. Also it can be a better option in child cases.

P-378
Abstract Topic Name: Detection and Treatment of Reactions
Presentation Screen Number: 6
Presenter: Carolina Talhari
ULCERATED LEPROSY TYPE 1 REACTION PRESENTING WITH LEUKOCYTOLASTIC VASCULITIS
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Introduction: Ulcers are an uncommon presentation of borderline tuberculoid leprosy (BTL) occurring most probably as a result of type 1 reaction. We report a patient who developed multiple ulcerated and necrotic lesions due to borderline tuberculoid leprosy with type 1 reaction and leukocytolastic vasculitis.

Methods: A 23 year-old Brazilian male presented with disseminated ulcerated lesions on the trunk and limbs three months after he had initiated multidrug therapy for multibacillary leprosy. The patient came from Doisite, state of Pará where he had initiated the anti leprosy treatment. Physical examination showed erythematous papules and well-demarcated reddish and round plaques with central ulceration and superficial crusts on the face and trunk; large ulcerated lesions with necrotic areas were also seen on the back and right arm. Direct smear for the diagnosis of cutaneous leishmania, bacilloscopy, IOD test, VDRL and HIV serology were negative. Chest X-ray showed no abnormalities. Histological examination revealed inflammatory granulomatous infiltrate around neurovascular bundles. There was also a prominent dermal edema between the inflammatory cells and fibrinoid necrosis of the vessel walls with perivascular neutrophil infiltrate and leukocytolasic. Waid staining showed no acid fast bacilli. Based on these clinical
Reduced intra-epidermal nerve fibre density. The investigation of neuropathic pain. Profiles collected indicate that leprosy chronic pain is

Conclusion: This is the first study differentiating sensory profiles in leprosy patients for

and historically findings a diagnosis of BTL with type 1 reaction and leuocytoclastic vasculitis was made.

Results: Once multidrug therapy for multibacillary leprosy was already initiated, the patient was kept in this regimen and oral prednisone initiated with good clinical response within two months.

Conclusion: Clinically, type 1 leprosy reaction may be suspected when there is an increased inflammation of pre-existing cutaneous lesions. On histological examination, lesions show features of a delayed-type hypersensitivity reaction. There are different theories as to explain the development of ulceration in type 1 leprosy reaction cases. It is known that Th1 response leads to the release of pro-inflammatory cytokines including tumor necrosis factor (TNFα), which is thought to enhance killing of intra-macrophage mycobacteria through nitric oxide and oxygen reactive species production. This continuous macrophage stimulation would lead to local tissue damage and consequent ulceration. Moreover, ulceration may possibly occur in genetically predisposed individuals with homozgygous for the TNFα allele. Such individuals show very high plasmatic concentrations of TNFα when compared to heterozygous and homozgygous subjects for the allele TNFβ.

A variable degree of vascular involvement including leuocytoclastic vasculitis (LV) is usually observed in the majority of patients with type 2 leprosy reaction. LV is also seen in Lucio’s questionnaire.

By the DFNS (Rolke et al 2006). A 3 mm punch biopsy was collected to assess the IENFD.

Introduction: Neurotis is a common condition affecting the nerves of leprosy patients. Delay diagnosis could lead to irreversibility disabilities. Report two cases of patients with neuropathy due to leprosy treated with high doses of intravenous metilprednisolone.

Methods: Cases Report: Both patients were submitted to a dermatological and neurological assessment. First patient was a 61 years-old woman with a 3 years complaint of an asymmetric pain, tingling and hypoaesthesia in her left hand. After a few months the symptoms affected the right side and she also presents weakness in her left hand. On physical examination she presented weakness from on ulnar and median nerves worst on left side. Ultrasound of peripheral nerves and electromyographic were performed before, immediately after the first dose of metilprednisolone and the monthly.

Results: Both patients refersed clinical improvement about their pain and parestesias. Report two cases of patients with neuropathy due to leprosy treated with high doses of intravenous metilprednisolone.

Conclusion: High doses of intravenous metilprednisolone seems to be a safe and effective treatment to prevent neuropathy and its consequently disabilities due to nerve damage.
LIVELIHOOD INTERVENTIONS TOWARDS INCLUSIVE DEVELOPMENT FOR HEALING, INCLUSION AND DIGNITY OF INDIVIDUALS AFFECTED BY LEPROSY AND DIFFERENTIALLY ABLED PEOPLE

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Abstract Topic Name: CBR
Presentation Time: Thursday 19/09/2013 at 12:40 – 12:50
Presentation Screen Number: 7
Presenter: Shumei Feng

Investigation and analysis on the living conditions of leprosy rehabilitation outside the hospital in Gansu province

Introduction: Gansu Province is situated in the northwest of China. Gansu covers an area of 425800 square kilometers and has a population of 26171600. Gansu has 14 cities (prefectures) and 86 counties (districts). There are altogether 54 nationalities in Gansu. In China, Gansu Province is the regions of low leprosy endemic. The incidence, prevalence and popular range of Leprosy decreased significantly by aggressive prevention in 60 years, but the number of leprosy survivors is unknown. In order to grasp the number, living conditions and demand of survivors, prevention and control process of leprosy in Gansu Province, we conducted a special survey in 2009-2011 in Gansu Province.

Methods: This survey used a self-designed questionnaire. Acquisition questionnaires by registering and recording the information of survival leprosy rehabilitation from 14 cities (prefectures) and 86 counties (districts) since 1949. The main content of the questionnaire includes basic information, basic living conditions, etc. 2 or 3 leprosy professional technicians from different counties were selected to participate training in the province in order to achieve a unified survey methods, techniques standards and inspection methods. Do a household investigation for all of registered cases. Establish an EXCEL database including the standard deviation, mean and the constituent ratio. Results: A total of 4873 cases of leprosy patients were registered since 1949, 1020 cases of leprosy survivors was surveyed by verifying. 1020 questionnaires were distributed and 991 returned, the recovery ratio was 97.15%, excluding which invalid questionnaires, 968 were Retention. The respondents had 671 males and 297 females, the average age was 62 years old including illiterates (717 cases, 74.07%), farmers (940 cases, 97.10%), people can not take care of themselves or poor self-care accounted for about 30%; More than 8% of those surveyed lived below the poverty line. 342 cases reported their economic income, Annual per capita income of 153 cases was less than 1,000 Yuan, accounting for 44.74%; 54 cases reached 1000-2000yuan, accounted for

Relevance of saving and credit co-operatives to the empowerment of persons with disabilities: a descriptive study in Addis Ababa slums

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Investigation and analysis on the living conditions of leprosy rehabilitation outside the hospital in Gansu province

Introduction: Persons with disabilities (PWDs) including the leprosy affected are among the poorest of the poor in Ethiopia. They are largely excluded from the mainstream social and economic development. Micro credit is an intervention increasingly recommended to alleviate poverty and PWDs and enhance their socio-economic empowerment. Although microcredit has been considered as a key instrument in the fight against poverty. PWDs are largely barred from the mainstream micro finance schemes in poor countries including Ethiopia. While it is estimated PWDs constitute 10 percent of the population, microfinance organizations reported only 0.0-0.5 percent of their clients had disabilities. Following this gap and recognizing the importance of micro credit in poverty alleviation and empowerment of PWDs, several Civic Society Organizations and Disabled People Organizations have been promoting alternative micro credit services for/of PWDs. Promotion of saving and credit cooperatives (SACCOs) is one such alternative. This study was conducted to assess whether the SACCO model has reduced the poverty of PWDs and led to their socio-economic empowerment. Said in another, the objective of this study was to assess the psychological social, economic and political empowerment gains obtained by the PWDs through forming and participation in their own SACCOs.

Methods: The study was conducted in four SACCOs of PWDs with a population of 463 members in Addis Ababa slums from March to May 2012. Interview schedule was used as a tool for data collection and administered to 58 sample respondents drawn proportionally from each SACCO. Respondents were asked open and close ended questions to find out their psychological, social, economic and political empowerment benefits. The collected data was tabulated, analyzed and presented in the form of tables. Simple statistical techniques such as percentages and averages were used for data analysis at SACCOs and members levels. To address the research question and the relationships between variables, frequency tables, comparative tables and graphs were prepared to draw meaningful inferences.

Results: Analysis of the perception of SACCO members has revealed participating PWDs have obtained benefits in psychological, social, economic and political spheres of their lives. SACCO interventions have brought about 100% improvements in members psychological empowerment. In the two areas namely socio-cultural and political empowerment, they have scored 87%; overall improvement. Lastly, members economic gain has reached 67%. The evidences have also suggested the extent of empowerment in the four aspects have not been uniform. While the psychological empowerment benefits were very high economic gains were the lowest.

Conclusion: This study has unveiled micro credit interventions particularly the SACCOs are relevant in poverty alleviation and empowerment of PWDs by enabling them to register marked improvements in psychological, social, economic and political spheres of their life in the community. Henceforth, the cooperative approach and services are helpful in addressing the disadvantaged and marginalized positions of PWDs in the society. The cooperative approach may also be replicated to other problem areas such as lack of shelter and vulnerabilities to prices increases of basic consumption goods (grain for instance) by promoting PWDs housing and consumer cooperatives.
15.79%; 77 cases reached 2000–5000 Yuan accounted for 22.51%; 58 cases achieved more than 5,000 Yuan, accounted for 16.96%; 11.78% of respondents enjoy the subsistence allowances between 150 ± 78 Yuan, 88.22% of those surveyed did not enjoy the subsistence allowances. 66.96% of those surveyed lived on their own labor, and 25.72% rely on child support, 7.33% rely on the dole. In 440 cases, 119 cases had 1 person in their family, accounting for 27.05%, which was the Widows and Orphans; 81 cases had 2 people, accounting for 18.41%; 240 cases of family size is three or more persons, accounting for 54.55%. In 840 families, 50 cases had no family labor, accounting for 5.95%; 227 cases had only one labor, accounting for 27.02%; 288 cases had 2 labor, accounting for 34.29%; 3 labor in Gansu cases, accounting for 26.55%; 52 families had five or more labor, accounting for 6.19% of respondents participated in a new type of rural cooperative medical care, and 12.19% did not participate.

Conclusion: The living condition of leprosy rehabilitation is poor in Gansu Province. These rehabilitations can improve the quality of life through participating basic insurance and new rural cooperation medical Information system, living in sanatorium, improving the rehabilitation of medical and self-care, prevention and rehabilitation disability, increasing social concern and relief and reducing discrimination.

P-477 Presentation Time: Thursday 19/09/2013 at 13:00 – 13:10
Abstract Topic Name: CBR
Presentation Screen Number: 7
Presenter: Shoojakar Kandel

UNDERSTANDING THE IMPACT OF MIXED SELF-HELP GROUPS AND ECONOMIC EMPOWERMENT ON THE SELF-RESPECT OF LEPROSY AFFECTED PEOPLE IN NEPAL

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Introduction: Leprosy is chronic and infectious disease due to lepromatous mycobacterium. The community people have the negative thought about the leprosy. They think leprosy is the result of committed sin in their earlier life. In religious books, school curriculums, leprosy is regarded as a highly contagious disease and which is contributing to make the situation more complicated. More over their poverty situation compel them to live in more miserable condition. Ignorance and lack of the knowledge of prevention people affected by Leprosy used to be deformed themselves. The stigma associated with leprosy is discriminate, restricted and limited in social activities. The stigma associated with leprosy is deeply rooted in the society and this same perception has been passed unto generations after generations. This study aims to assess the effect of Community Based Rehabilitation Program funded by Leprosy Mission Nepal on the dignity and socio-economic situation of the leprosy affected people in Ramechap and Rutahat districts of Nepal.

Methods: Two hundred respondents were interviewed to assess how the mixed Self-Help Groups (group of disabled, marginalized and leprosy affected people) help to reduce the social stigma and to integrate leprosy in the community. It also explores how they have been empowered economically. Focus group discussion of community members and other stake holders will also be conducted in both these districts, which will help us to understand the changed perceptions of other community members and to identify their acceptance level in most of the socio economic cultural activities of the society; the integration of the leprosy affected people with general disability and marginalized groups and integrating these three groups into the mainstream of the society.

Results: The findings show that communities are gradually accepting that leprosy is not the curse of their previous birth but results of bacterial infection and negative connotation of the society. Advent of micro finance facilities for the small scale entrepreneurship and skill development help improve their economic situation.

Conclusion: The study concludes that awareness and different economic interventions can improve the self-respect and economic situation of the leprosy affected people. Further, they are gaining gradual improvement on their situation and are being rehabilitated in their community with self-respect.

Abstract Topic Name: CBR
Presentation Screen Number: 7
Presenter: Jose Manikkanthan
LEPROSY REHABILITATION - CBR APPROACH

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Introduction: In India the estimation indicates that 1,500,000 of population is with disabilities because of leprosy who live in leprosarium or colonies or in some far reaching villages. It does not matter where they live; all of them face similar kind of issues like inequality, discrimination, exclusion, exploitation, injustice and denial of rights. Their struggle is for only one issue of inclusion and equality. It is rightly noted that persons with disabilities due to leprosy are unheard and unaccounted. For example, even today there are about 700 leprosy colonies in India and more than 1,000,000 persons affected by leprosy live in isolation and they are ignored in the national developmental process. It is now more than three decades that CBR approach for the rehabilitation of people with disabilities has been promoted by WHO and other UN agencies. Recently in 2010 (October) WHO and UN agencies has released a comprehensive, inclusive, universal standard guideline for implementing CBR in developing Countries. This approach is also seen as part of community development for the inclusion of all persons with disabilities, for their empowerment and to promote human rights. There are many CBR programmes spread across the country and expected to cover all groups of persons with disabilities. However, in practice most programmes have excluded certain categories of disabled persons and persons with disabilities due to leprosy are often excluded. After the integration of NLEP in to the general health system many NGOs also stopped leprosy rehabilitation activities. On the other hand, the NLEP programmes especially those managed by the government have concentrated only on disease control activities. Further, socio economic lives of the leprosy affected people have not addressed in the mainstreamed developmental process.

Methods: Literature review, observational visits to leprosy colonies/leprosarium, discussions with the project managers, ILEP meetings, interactions with experts, review of NLEP reports and finally review of AIFO supported projects reports are the core methodologies applied to prepare this paper.

Results: The multi sectoral approach adopted by AIFO in tackling the problem of leprosy has been quite successful in many districts of India in combating the endemic of leprosy. At the same time, the disabled persons caused by leprosy are included in the mainstream developmental process. The outcomes of some of these projects have been analysed during evaluation exercises using participatory methods. The impact of the CBR programmes is also analysed through some of the scientific studies conducted by AIFO.

Conclusion: The experiences clearly reveal that, the exclusion of leprosy affected people is a burning issue which draws serious attention of the civil society and state. The root cause of this situation is having lack of right perspective, approach, model, response, broader understanding of disability and inclusive development. This process requires a comprehensive, empowering, social inclusion, strategic, right perspective and holistic approach to the issue of inclusive development in the society. Eventually persons affected by leprosy weather with or without disability enjoy equality, rights, dignity, respect and inclusion in the society as mentioned in Article 3 “general principles” of UNCRPD 2006.

Abstract Topic Name: CBR
Presentation Screen Number: 7
Presenter: Nyma Kraipui

MODEL OF COMMUNITY BASED REHABILITATION FOR PEOPLE AFFECTED BY LEPROSY AFTER INTEGRATION OF LEPROSY COLONY TO GENERAL COMMUNITY : CASE STUDY OF PRASAT LEPROSY COLONY, THAILAND

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Introduction: Disability related to leprosy may result in socio-economic problems that finally leads to indignity living in general community of those who affected. This study was conducted to develop the model of rehabilitation for people with leprosy related disability in order to increase their human dignity after integrating leprosy colony into general community.

Methods: This participatory action research was conducted by:
1. Reviewing the geography and history of Prasat leprosy colony, Prasat district, Surin province, Thailand.
2. Developing the model of rehabilitation of persons affected by leprosy that was respectively conducted by community analyzing, volunteers recruitment, formulating plan of action, funding raising and budget request, and monitoring and evaluation.

Results: Prasat leprosy colony was established in 1953 on 260 acre of land which was reduced to 140 acre as a result of land intruding. Integrating leprosy colony was started in the year 2004 and completed in the year 2011 by signing the Memorandum of Understanding (MOU) between different stakeholders. After the MOU signing, rehabilitation process was done as follows:

1. Disseminating correct leprosy knowledge under the participation of surrounding community based on local culture.
2. Management of micro credit fund, establishing occupational group, seeking development fund form local administration organization to improve water source for non-chemical vegetable farm.
3. Establishing local volunteer group to help improve the quality of life of people with leprosy related disability by establishing data base, formulating plan of action, need assessment.
through home visit, provide assistance according to needs based on networking cooperation facilitating by sub-district health promotion hospital.

4. Opening bank account for persons affected by leprosy who used to get cash allowance from the office of leprosy colony.

5. Transferring the colony properties to sub-district administrative organization who will later manage the land to persons affected by leprosy.

Conclusion: The officer of Regional Office of Disease Prevention and Control 5 Nakhon Rachasima who was acted as the chief of leprosy colony had moved from the colony to work at the head office in order to allow local organizations to manage and develop ex-leprosy colony in the same manner as general community. As a result there were micro credit fund, local volunteers group, water resource management, agriculture promotion under the participation of persons affected by leprosy. It was expected that these activities will finally lead to the reduction of stigma related to leprosy in the long run.

P-484
Presentation Time: Thursday 19/09/2013 at 13:30 – 13:40
Abstract Topic Name: CBR
Presentation Screen Number: 7
Presenter: Niorn Ariyothai

INCLUSIVE SELF HELP GROUP: INCREASING HUMAN DIGNITY OF PEOPLE WITH LEPROSY AND OTHER CONDITION RELATED DISABILITIES

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Introduction: As a result of disability and negative attitude of community, people affected by leprosy had to suffer physical and socio-economic problems leading to community’s stigmatization and rejection on capability of people affected by leprosy. Moreover, most of people affected by leprosy dared not to open themselves as having leprosy, did not participate in community activity, and self-isolated. Other people with other condition related disability also suffered similar problems. This study was conducted to rehabilitate people affected by leprosy and people with other condition related disability in order to enable them to live in community with dignity.

Methods: This Participatory Action Research (PAR) was conducted by involving community in all steps which are problem analysis, plan formulating, active implementation, problem solving, monitoring and evaluation. The study was conducted between January 2012 and January 2013 at Bann Than district, Chaiyaphum province, Thailand. Qualitative data collection was done through in-depth interview, participatory observation, focus group discussion and document reviews.

Results: Self Help Group (SHG) was formally established at Baan Than. It was the first SHG that included people affected by leprosy and people with other health condition related disability with the objective to provide care and support each other. Consultants of SHG consisted of family members of SHG members, health volunteers, health officer, community leaders and local administrative organization. The consultants served as consultant and support the SHG activities focusing on capacity building of SHG to enable them to run the group, reduce their dependent on government sector and finally stand by their own feet. At the time of formally establishment, there was a fund raising among the group members and consultants obtained fund was used for group meeting, plan formulating and run activity which were occupation group, group empowerment, Information Education and Communication (IEC) activity, self care training, home visit and referring the problems obtained to organization involved. Visited people and families were satisfied with home visit activity and expressed their prefer for regularly further visit. SHG implementation resulted in cooperating working between SHG and community, families and community understood, reducing stigmatization and recognition of SHG. This was shown by community’s participating SHG activity and purchasing SHG products.

Conclusion: SHG help establish cooperation among people affected by leprosy, people with other condition related disability and other community members leading to more confidence, more leadership, more idea expression and more self esteem in SHG members. This will finally reduce stigma related to leprosy and disability in the long run.

P-485
Abstract Topic Name: CBR
Presentation Screen Number: 7
Presenter: Gomes Unarat

THE MODEL OF PARTICIPATORY INTEGRATION OF LEPROSY COLONY INTO GENERAL COMMUNITY IN SURIN PROVINCE, THAILAND

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Introduction: Leprosy colonies, the organizations under the administration of the Department of Disease Control (DDC), had been gradually established since the year 1937 with a total number of 14 colonies scattered across the country. The purpose of the colony establishment was to provide shelters for people with leprosy related disabilities, and those who were homeless due to stigmatization in their own family and communities. As the results of budget constraint and less priority, leprosy colonies were not fully administrated. The community members, who were mostly old, faced difficulties in accessing general health care services and public utilities. This study, therefore; was conducted to develop a model of “participatory integration of leprosy colony into general community” in order to enable people with leprosy related disabilities to live inclusively with surrounding communities.

Methods: This study is a Participatory Action Research(PAR). The study area was Prasart leprosy colony. Integrated process was carried out between October 2009 and September 2012. Focus Group Discussions (FGDs) was used among the members of Prasart leprosy colony to identify problems that may occur during the course of intervention. Future Search Conference(FSC) was used to gain comments, and seek primarily agreement and problem solution. Lessons learned from each phases were recorded.

Results: The integration was successfully done step by step in three phases as follows
1. Preparation Phase: consists of selecting area to be integrated and approaching stakeholders by introducing integration ideas.
2. Implementation Phase: consists of Focus Group Discussions to seek for the problems that may occur during the course of integration, using FSC technique to brainstorm the members of a leprosy colony in order to participatory identify their desire future, meeting among leprosy colony members and involved organizations to seek for problem solution, conducting public hearing to seek for the colony members’ agreement, formulating a draft of Memorandum of Understanding (MOU), and signing MOU among organizations involved
3. Evaluation and Monitoring Phase: was done by interviewing people involved in monitoring MOU implementation. It was found that related organizations had carried out activities in accordance with the MOU. Local health promotion hospital provided health care to leprosy colony members instead of the colony health unit. Local administrative organization provided public utilities and disability allowance to ex-leprosy colony members. The Ministry of Social Development and Human Security legally abolished leprosy colony. Apart from that this ex-leprosy colony had served as the study visit destination of interested organizations.

Conclusion: This integration of the leprosy colony into the general community involved all stakeholders which were people affected by leprosy, surrounding community members and organizations involved. It lead to inclusion of the people affected by leprosy with general community members that will establish equity and gain human dignity of people affected by leprosy in the long run. Further investigation is needed to identify the impact of integration to the quality of life of people affected by leprosy who were ex-members of leprosy colony.

P-486
Presentation Time: Thursday 19/09/2013 at 13:50 – 14:00
Abstract Topic Name: CBR
Presentation Screen Number: 7
Presenter: Mohammad Rahman

COMMUNITY BASED REHABILITATION FOR LEPROSY AFFECTED PEOPLE WITH DISABILITIES IN BANGLADESH THROUGH MICRO FINANCE: A REAL PICTURE OF SOCIAL INCLUSION OF DISABLED PEOPLE AND ITS SUBSEQUENT IMPACT IN THE SOCIETY

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Introduction: Leprosy achieved official elimination status in Bangladesh since 1998. However, Damien Foundation continues to detect new cases in the areas in which it operates and has noted a high number of patients suffering from disability. Statistics indicates that 16% of patients have
grade 2 disabilities at diagnosis. Although medically cured, the majority of them are permanently disabled as a result of leprosy and most of them are unable to continue normal activities due to their disabilities. It causes long term or life long unfavorable socio-economic consequences to the person’s and to their family members. Realizing the global and regional burden of disability due to leprosy rehabilitation under leprosy control activities is considered a basic concept and guiding principle of the Global Strategy for further reducing the Leprosy burden and sustaining leprosy control activities and regional strategy for sustaining Leprosy services and further reducing the burden of leprosy. To meet the basic need of sustaining leprosy control activities by rehabilitating leprosy sufferers back into the community, DF Bangladesh has undertaken a pilot Community-Based Rehabilitation (CBR) project since 2009 to cover the northern region of Bangladesh to provide them with a platform for economic independence in the future.

Methods: Applied research methodology is used here. e.g.
1. Beneficiary selection: In each phase, a specific number of Income Generating Activities (IGA) clients, Vocational Training (VT) clients, Housing clients and support for educational clients have been selected fulfilling the desired criteria.
2. Orientation for the beneficiaries: Before financing, trade wise different orientations have been conducted by Basic Project, e.g., orientation for beneficiaries on IGA management and ensuring Vocational training for skill development, Orientation for SUS supervisors, and orientation for Community Volunteers(CV) on IGA management.
3. Financing to the beneficiaries: Financing, is implemented following three models, e.g: a) GRANT–LOAN Model: In this model, Grants from DF and a loan is also given to the same client at the same time from Swabolomby Unnyan Samity (SUS)-a local Microfinance Institution who are proficient in microfinance with supervision. b) GRANT Model: In this model, a grant is given to the beneficiaries with the supervision by DF staff. c) GRANT– CV Model: In this model, grant is given to beneficiaries engaging CV for supervision and monitoring in addition with DF staff.
4. Supervision and Monitoring: In GRANT LOAN Model, supervision and monitoring is done by SUS supervisors and monthly report to CBR Coordinator(CBRC); in GRANT Model, supervision & monitoring is done by DF own staff & also monthly report to CBRC and in GRANT CV Model, supervision & monitoring is done by CV in addition with DF staff and also weekly report to CBRC.
5. Data analysis through Excel sheet: A daily account is opened for each client to record incomes vs expenses to monitor their sustainability in the trade.

Results: Results are categorized in 4 groups: e.g: 1) Sustainable i) Medium ii) Low and iv) Failure. In GRANT–LOAN Model, the result shows that 20% are sustainable, 47% are medium, 20% are low and 13% are failure. Besides, in GRANT Model, the result shows that 40% are sustainable, 40% are medium, 10% are low and 10% are failure.

Conclusion: It is early to conclude the result because another two experiments are going on and we have to wait at least one year to have the real picture of the study. Although, it seems to us that GRANT–CV Model may gives us a better and sustainable results.
symptoms, a score of zero indicates absence of symptom and scores one, two and three, the presence of symptoms. The data were analyzed with EPI-INFO version 7.1.1.0. Data was analyzed using descriptive statistics, with frequency distribution to characterize the sample. The corrected Chi-square test (*Yates*), considering significant results p-value <0.05 was used for the combination of variables of protocol BDI-SF, GI and other response variables.

Results: We evaluated 130 patients undergoing treatment for leprosy in the Lauro de Souza Lima Institute, Bauru, SP, Brazil. The age of patients ranged from 18 and 78 years, with mean 49.64 ± 10.04. The majority were males (64.6%), living with their family (87.7%), and who had completed elementary school (66.2%), stable civil union (61.6%), unemployed (75.4 %) and retired or receiving health aid (63.9%). In regards to clinical forms of leprosy, 94.5% were multibacillary, 74.6% took multidrug therapy and most presented with loss of protective sensation and/or deformities (31.5% grade 1 and 37% grade 2). In respect to the depressive symptoms, most individuals were not depressed (56.9%), but 43.1% were moderate to severely depressed. 

There was no significant correlation between BDI-SF and GI (p-value = 0.950), but current occupation was significantly associated with BDI-SF (p-value = <0.05). Somatic preoccupation was the most common symptom (80.7%), followed by difficulties at work (78.5%), irritability (68.5%), fatigue (67.1%), self-blame (62.3%) and tearfulness (60%).

Conclusion: There was a predominance of patients with some kind of disability and not currently working. Although the majority of respondents did not have symptoms of depression, a high percentage of these cases showed symptoms. The most frequent depressive symptoms were somatic preoccupation, difficulty at work, irritability, fatigue, tearfulness and self-blame. Depressive symptoms showed no significant correlation when compared to the degree of disability, but compared to the current occupation, showed significant evidence of a relationship between individuals who do not work and work.

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**P-062**

**Presentation Time:** Thursday 19/09/2013 at 13:00 – 13:10

**Abstract Topic Name:** Nerve Functions and Impairments

**Presentation Screen Number:** 8

**Presenter:** Inge Wagenaar

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**NORMATIVE VALUES FOR MONOFILAMENT TESTING IN RADIAL CUTANEOUS AND SURAL NERVES**

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**Introduction:** In leprosy, nerve function impairment (NFI) has to be diagnosed and monitored accurately in order to prevent disabilities. Monofilaments are a reliable and quick tool to assess sensory nerve function loss and are therefore widely used in clinical practice. Next to the ulnar, median and posterior tibial nerves, that are usually assessed, the additional assessment of the radial cutaneous and sural nerve can be helpful for better diagnosis and monitoring of NFI. However, in order to determine the definite sensory impairment in leprosy patients it is important to know what the monofilament threshold is in normal subjects. Therefore, in this study we will establish normal values for three test sites on the radial cutaneous and sural nerves.

**Methods:** The radial cutaneous, sural, ulnar, median and posterior tibial nerves of healthy Indian and Nepali volunteers are tested using a standard “pocket” set of six colored Semmes-Weinstein monofilaments. For all nerves, the area of the skin innervated by a nerve is tested at three sites on both left and right body side. This is done by recording the ‘lightest’ filament felt by the subject for each of these three sites. To establish the normative value, the cut-off for the proportion of subjects detecting a certain monofilament (threshold) is set at the 95th percentile. Normal monofilament thresholds will be calculated per test site and per nerve. Additionally, data is collected on age, occupation, dominant hand, smoking habits, habits of wearing footwear, types of footwear and whether the subjects sit cross-legged. The influence of these variables on the threshold is examined using uni- and multivariate analysis.

**Results:** Results of this normative study will be presented and discussed at the ILC 2013.

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**P-063**

**Presentation Time:** Thursday 19/09/2013 at 13:10 – 13:20

**Abstract Topic Name:** Nerve Functions and Impairments

**Presentation Screen Number:** B

**Presenter:** Chandrakant Poulkar

"EVALUATION OF NERVE FUNCTION IMPAIRMENT (NFI) IN PAUCIBACILLARY LEPROSY (PB) PATIENTS ON WHO PAUCIBACILLARY MULTIDRUG THERAPY (PB-MDT) ALONG WITH OR WITHOUT CLOFAZIMINE"

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**Introduction:** Nerve function assessment is important for early diagnosis of NFI and evaluation of therapy in leprosy. NFI may be present without clinical symptoms which can be detected by nerve function assessment. The WHO Technical Advisory Group (TAG), in its third meeting in 2002, proposed uniform MDT regimen (U-MDT) of 6 months duration to treat all types of leprosy. Previous study (S. Anruthath et al in 1997) showed that clofazimine may have a useful prophylactic role against neuritis/type 1 reaction and nerve damage. However, no study investigating the possible role of clofazimine as part of Uniform MDT in prevention or improvement of nerve function impairment in PB Leprosy has been reported.

**Methods:** 60 paucibacillary leprosy patients were enrolled in randomized double blind trial. Study group (30 patients) received 6 months of standard WHO PB-MDT along with clofazimine. Clofazimine was given in a dose of 50 mg daily & 300 mg once a month in adults. Control group (30 patients) received 6 months of standard WHO MDT/PB only. Nerve function assessment were done in both groups using clinical tests (nerve palpation, sensory testing using monofilament and voluntary muscle testing) and sensory and motor nerve conduction studies before initiation of treatment and after completion of treatment. Both study and control groups were assessed at 6 months as compared to baseline by clinical tests and nerve conduction studies. Analysis was performed using SPSS version 17. The significance of association was tested using Chi square and Fisher’s exact tests.

**Results:** Using clinical tests (nerve palpation, monofilament and voluntary muscle testing) and nerve conduction studies the proportion of sensory and motor nerves showing improvement or deterioration were similar in the both groups as compared to baseline. (P > 0.05)

**Conclusion:** There is no significant difference in improvement or deterioration of NFI in paucibacillary leprosy (PB) patients on standard WHO paucibacillary multidrug therapy (PB-MDT) when administered with or without clofazimine.

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**P-064**

**Presentation Time:** Thursday 19/09/2013 at 13:20 – 13:30

**Abstract Topic Name:** Nerve Functions and Impairments

**Presentation Screen Number:** B

**Presenter:** Dr Rosa Arantes

**SKIN DENERVATION AND CORRELATION TO OBJECTIVE THERMAL SENSORY TEST IN LEPROSY PATIENTS**

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**Introduction:** Leprosy is an infectious disease affecting skin and peripheral nerves resulting in increased morbidity and physical deformities. Early diagnosis provides opportune treatment and reduces its complications, relying fundamentally in the demonstration of impaired sensation in suggestive cutaneous lesions. The loss of tactile sensitivity in the lesions is preceded by the loss of thermal sensitivity, stressing the importance of the thermal test in the suspicious lesions approach. The gold-standard method for the assessment of thermal sensitivity is the quantitative sensory test (QST). Morphological study of intraneural and dermal nerve endings may be an alternative approach to access the thin nerve fibers responsible for the thermal sensitivity transduction. The few studies reported in leprosy patients pointed out a rarefaction of thin dermo-epidermal fibers in lesions, but used semi-quantitative evaluation methods.

**Methods:** This work aimed to study the correlation between the degree of thermal sensitivity impairment measured by QST and the degree of denervation in leprosy skin lesions, evaluated by immunohistochemistry anti-PGR 9.5 and morphometry. Twenty-two patients were included.

**Results:** There were significant differences in skin thermal thresholds among lesions and contralateral skin (cold, warm, cold induced pain and heat induced pain). The mean reduction in the density of intraepidermal and subepidermal fibers in lesions was 73.5% (SD = 19.6) and 80.8% (SD = 24.9), respectively. We observed good correlation between intraepidermal and
subepidermal fibers deficit, but no correlation between these variables and those accounting for the degree of impairment in thermal thresholds, since the thin fibers rarefaction was homogeneously intense in all patients, regardless of the degree of sensory deficit.

Conclusion: We believe that the homogeneously intense denervation in leprosy lesions should be objective of further investigations focused on its diagnostic applicability, particularly in selected cases with only discrete sensory impairment, patients unable to perform the sensory test and especially those with nonspecific histopathological finds.

P-065
Presentation Time: Thursday 19/09/2013 at 13:30 – 13:40
Abstract Topic Name: Nerve Functions and Impairments
Presentation Screen Number: 8
Presenter: Dr Isabela M. B. Goulart

THERMOGRAPHY AS AN EARLY INDICATOR OF NERVE INJURY IN LEPROSY PATIENTS

A. C. S. R. Cunha 1, 2, *, S. Araújo 1, 2, I. M. B. Goulart 1, 2, D. E. Antunes 1

Introduction: Leprosy bacilli may directly or indirectly cause damage to skin and peripheral nerves which may result in nerve function impairment and disability. Sensory innervation has been implicated in a variety of biological processes such as maintaining tissue homeostasis, which is involved in blood flow and pressure regulation. Reduced blood flow to the distal parts of the limbs leads to ischemia and inflammation around the vessels and nerves which precede clinical manifestations, Vascular alterations and lymphocytic infiltrates in the muscular tissue are likely to be a primary responsible for deformity and ulceration in leprosy. These variations in regional blood flow and microcirculation consequently amends the skin surface temperature. Although is familiar that cutaneous sensory innervation influence the skin temperature, there are no reports in the literature regarding leprosy neuropathy on skin temperature. Thermography is a highly sensitive non-invasive technique capable of detecting qualitative and quantitative alterations in skin surface temperature allowing reliable assessment of normal and abnormal functioning of the sensory and sympathetic nervous system.

Methods: Comparative and bilateral skin surface temperature measurements of hands and feet's were obtained using an infrared video camera and a differential thermometer data logger. Palm and sole areas corresponding to innervation points of the median, ulnar, radial and tibial nerves were evaluated. Student's paired t-test was performed to compare temperature variation means between symmetric sites with significance level of p<0.05.

Results: Data from 20 leprosy patients at diagnosis were assessed, 25% (5/20) presented grade-0, 30% (6/20) grade-1 = 42% (9/20) grade-2 disabilities. In total, 70% (14/20) of the patients showed temperature variations between hemispheres of the body. Temperature variations in grade-0 patients were not significant. Among those with grade-1, 83.4% (5/6) presented an average difference of 2.5°C between right and left limbs, statistically significant. In 77% (7/9) of patients with grade-2 disabilities that presented temperature variation between limbs, an impressive average difference of 10°C was observed. All patients with observed temperature variance were referred for physiotherapeutic attendance. Regarding the innervation correspondence of nerves in those with temperature discrepancy, 50% (7/14) related to the ulnar, followed by 29% (4/14) to the median and 42% (6/14) to the tibial nerve.

Conclusion: The peripheral neuropathy deriving from the manifestation of leprosy can lead to a partial or complete loss of motor, sensory and autonomic functions, which in turn are related to changes in skin temperature in the involved segments of the body. The thermography is a non-invasive imaging exam that provides consistent images with reproducible thermal patterns in most common sites affected by leprosy bacilli, even before the occurrence of clinical signs, and it can be a viable tool in the early diagnosis of nerve injury, hence enabling forehand interventions which could prevent disabilities and avoid irreversible nerve damage related to the stigma that comes with the disease, as well as reducing expenditures on reconstructive and rehabilitative surgeries.

P-066
Abstract Topic Name: Nerve Functions and Impairments
Presentation Screen Number: 8
Presenter: M. Karmakar

CORRELATION BETWEEN NERVE CONDUCTION VELOCITY RESULTS AND VMT/ST IN PREDICTING THE PROGNOSIS IN PATIENTS WITH ACUTE NEURITIS

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2KIT Health, Royal Tropical Institute, Amsterdam, Netherlands

Introduction: Although overall prevalence of leprosy is decreasing, this disease continues to be a major cause of neuropathy worldwide, because Mycobacterium leprae has the capacity to invade the peripheral nervous system and cause neuropathy. Leprosy neuropathy is a chronic condition which begins as an infection of the Schwann cells and may end in a demyelinating neuropathy which increases during the inflammatory process accompanying the leprosy reactions. The nerve lesion may be insidious without any clinical manifestations, with mild clinical manifestations or an acute event especially during reactions. Oral steroid treatments are used to treat these reactions with variable outcomes. Following the protocol for reaction/neuritis treatment (steroid, splints, electrical stimulation and exercises) may arrest the progress of the neural damage and in several cases clinical recovery does occur.

In recent years several electrophysiological studies have been done, some on early diagnosis, to find the pattern of neuropathy in the peripheral nerves in leprosy. Extensive literature revealed that no study has been published yet correlating the findings of Nerve Conduction Velocity studies and the prognosis of the neuritis patients.

Methods: All leprosy patients reporting at The Leprosy Mission Hospital in Kolkata undergo detailed neurological assessment. Among them, all Patients with new nerve involvement with less than 6 months duration, as defined by complaints such as loss of sensation and paresthesia, sensory and / or motor impairment, nerve tenderness are included in the study. Patients at risk of neuropathy from causes other than leprosy such as diabetes, alcoholism, patients with family history of hereditary neuropathy, patients with history of neuropathy of more than 6 months duration are excluded.

Patient’s whose of the VMT/ST deteriorated during treatment or default on steroid therapy is removed from the study.

In addition to the clinical Voluntary Muscle Testing and Sensory Testing, Nerve Conduction Velocity test is being done for ulnar and median nerves (depending on the nerve involved). Compound motor axon potential (CMAP) and Conduction Velocity (CV) motor nerves are recorded and the existing protocol for neuritis treatment was followed. The seventy grades of neuro-physiological involvement will be classified as: 1. Normal: CV range: >50m/s; CMAP range < 0.5mV, 2. slightly abnormal: CV RANGE: 40m/s to 49 m/s; CMAP RANGE: 3 mV to 3.9mV, 3. moderate abnormal: CV range: 30 mV to 39 mV; CMAP range: 2 mV to 2.9 mV; 4. pronounced abnormal: CV range: 20 mV to 29 mV; CMAP range: 1 mV to 1.9 mV; 5. severe abnormal: CV range: 20 mV; CMAP range <1 mV.

Patients are examined at base line and on each subsequent visit for 3 months NCV and VMT/ST results recorded. Data will be analyzed to find the correlation between the baseline NCV and the VMT/ST of every follow up for 3 months and correlation will be found out.

Results: 7 patients have been included so far and the results show that there is between the VMT status and the prognosis in terms of the degree of improvement likely to be attained with treatment.

Conclusion: Nerve Conduction Velocity testing may prove to be helpful in predicting the degree of improvement expected and so contribute to modifications in management of neuritis.
NEGILIGIBLE IL-12P70 PRODUCTION BY THE DCS FROM LEPROMATOUS PATIENTS

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Introduction: Monocytes-derived DCs were generated in vitro from lepromatous and tuberculoid leprosy patients and healthy controls with IL-4 and GM-CSF and stimulated with a cocktail of cytokines (TNF, IL-1β, IL-6 and FGF), LPS and sonicated antigen from Mycobacterium leprae. The levels of IL-10, IL-12 p40, IL-12 p70, IL-15, TNF and TGF β1 in the supernatant were evaluated by ELISA.

Methods: Impaired production of IL-12 p70 was observed only in the DCs from lepromatous leprosy patients compared to DCs from tuberculoid patients and healthy controls. TNF production was increased after stimulation with sonicated antigen of M. leprae in all groups studied. There were no statistically significant differences in the production of IL-10, IL-12p40 and TGF β1 whereas no production of IL-15 was observed by the DCs of the studied groups.

Conclusion: Our results show negligible capacity of IL-12 p70 production by DCs derived from lepromatous leprosy patients, without the ligation of CD40, that may lead to the M. leprae specific Th1 energy. However, this speculation should be taken with caution until the results of further ongoing studies are completed.


P-107

CIRCULATING NEUTROPHILS OF ERYTHEMA NODOSUM LEPROSUM PATIENTS CONSTITUTIVELY EXPRESS CD64

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Introduction: Erythema nodosum leprosum (ENL) is the most severe immunological complications of leprosy and affects approximately 50% of multibacillary patients especially in the first year of chemotherapy, although it can occur before treatment begins. The rapid diagnosis and monitoring of patients with ENL is a fundamental tool. The CD64 expression on neutrophils has been proposed as a biomarker of inflammation such as in systemic sepsis. The aim of the present study was to evaluate the expression of CD64 in ENL patients by flow cytometry assays in comparison with non-reactional multibacillary leprosy patients and healthy donors of the Ambulatory Souza Araujo (Fiocruz).

Methods: Prospective analysis of blood samples from patients with lepromatous leprosy with or without ENL was performed for neutrophil CD64 expression. All patients were diagnosed according to Ridley and Jopling criteria and accompanied at Leprosy Outpatient Unit – Fiocruz. The laboratory findings were compared with clinical score. The data was analyzed by QuantCALC and the results were expressed in PMN CD64 index. Healthy individuals have levels of CD64 neutrophil less than 1.0. H rozipated patients have rates between 1.0 and 2.0 and patients with acute systemic infections have rates higher than 3.0. The study was approved by Fiocruz Ethics Committee and written consent was obtained from patients before blood sampling. Voluntary healthy individuals from endemic leprosy area were studied as control group.

Results: We observed that PMN CD64 Index from circulating ENL neutrophils was elevated, above 1.0 (n=15; mean (SD) = 2.50 (1.85)). However, PMN CD64 index from patients who have other clinical manifestations of leprosy, as well as healthy donors were smaller than 1.0 (LL, n=5; mean (SD) = 0.96 (0.27); HD, n=14; mean (SD) = 0.65 (0.23)).

Conclusion: Neutrophil CD64 expression quantification can be used to discrimination of ENL. This test may provide improved diagnostic detection of ENL compared with the standard diagnostic tests used in current medical practice.
SEROLOGIC PROFILE TO LID-1 AND PGL-I DURING LEPROSY REACTIONS

E. Hungria 1, A. Freitas 1, R. Oliveira 1, L. Cardoso 1, D. Mizioletti 1, M. Costa 1, A. Sousa 1, S. Reed 2, M. Duthie 2, M. Stefani 1,* on behalf of Mariane Stefani

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Introduction: Leprosy reactions (type 1/T1R and type 2/T2R) are major complications in the clinical management of patients because they may cause irreversible nerve damage and permanent disabilities. While T1R is associated with alterations in Th1 type cell-mediated immunity (CMI) to Mycobacterium leprae antigens, T2R is associated with Th2 type immune response with immune complex deposition and transient CMI activation. Currently no biomarker to predict or to diagnose leprosy reactions is available. This study evaluated the serological profile of paucibacillary (PB) and multibacillary (MB) leprosy patients that developed T1R and T2R.

Methods: Patients were recruited in a cohort study that monitored patients during MDT at central western Brazil. The following study groups were tested: Group A1: MB patients that had T1R or T2R at diagnosis; Group A2: PB patients presenting T1R at diagnosis; Group B1: PB leprosy patients that developed either T1R or T2R during MDT; the great majority was positive to LID-1 and PGL-I at diagnosis and the seroreactivity declined during the reactive episode (p<0.05). Group B2: Among PB patients that developed T1R during MDT the seroreactivity to LID-1 and PGL-I was low before and during T1R. Group C1: Among MB patients who did not develop reactions 90% were seropositive to LID-1 at diagnosis and 30% after MDT while reactivity to PGL-I at diagnosis was 80%, and declined to 60% after MDT. Group C2: Among PB patients who did not develop reactions the seroreactivity to LID-1 and PGL-I was low before and after MDT.

Conclusion: PB patients that developed T1R and the ones that did not develop reactions had low antibody levels at all moments evaluated indicating that the reactive episode had no impact in antibody production. MB leprosy patients that developed T1R/T2R had high antibody levels and these levels were higher during the reactive episode. The significant humoral immune response detected during T1R indicates that antibodies may also play a role in T1R. For MB patients diagnosed during T2R a lower decline in seropositivity was observed after MDT when compared to MB patients that did not develop T2R. These results suggest that maintenance of high antibody levels to LID-1 after MDT may be associated with T2R.

P-110

DIFFERENTIAL DIAGNOSIS OF MULTIBACILLARY LEPROSY AND OTHER DERMATOSES: POTENTIAL APPLICATION OF SEROLOGY

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Introduction: Leprosy diagnosis is based on clinical signs and symptoms and in clinical practice, the differential diagnosis of leprosy and other dermatoses remains a concern. This study assessed the seroreactivity to Mycobacterium leprae (M. leprae) recombinant proteins (ML) and to PGL-I among leprosy patients (multibacillary/MB and paucibacillary/PB) and patients with other dermatoses.

Methods: The study groups were: 1. Newly diagnosed untreated MB leprosy patients (BL/LL) and PB leprosy patients (TT/ BT); 2. Patients with other dermatoses (chronic eczema, pityriasis alba, drug induced skin reactions, dermatitis herpetiformis, lichen planus, sarcoidosis, pityriasis lichenoides, lichenoid drug eruption). Twenty patients per group were tested for IgG antibodies to rML (LID-1, 46f, 92f, ML0405, 33f; 1mg/mL; sera at 1/200 dilution; optical density/OD cut-off ≥ 0.300) and the IgM response to phenolic glycolipid-I (PGL-I; 0.01 mg/mL; sera at 1/300 dilution; cut-off OD ≥0.250) by ELISA.

Results: Most MB leprosy patients were seropositive to rML ranging from 55% (46f) to 80% (LID-1). 57% of MB leprosy patients were seropositive to PGL-I. As expected, low positivity was observed among PB leprosy ranging from 0% to 10% to both LID-1 and PGL-I. No patient with other dermatoses was seropositive for M. leprae proteins LID-1, 92f, ML0405; only one patient with chronic eczema had a borderline response to 46f. The entire group of patients with other dermatoses was negative to PGL-I.

Conclusion: The humoral response to new M.leprae proteins, mainly to LID-1, ML0405 and 92f was able to discriminate MB leprosy patients from other patients suggesting that (so to LID-1) could aid the clinician in the differential diagnosis of MB leprosy and other dermatoses.
Presentations

P-497

Presentation Time: Thursday 19/09/2013 at 13:30 – 13:40
Abstract Topic Name: Immunology
Presentation Screen Number: 9
Presenter: Patricia S Rosa

A DETRIMENTAL ROLE FOR TH17 AND TREGS SUBSETS IN THE CONTROL OF MYCOBACTERIUM LEPRAE MULTIPLICATION: IN VIVO EVIDENCES FROM KNOCKOUT MICE STRAINS

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Introduction: In the absence of a definitive experimental model for leprosy, the inoculation of Mycobacterium leprae in the mouse footpads comprise a useful experimental tool in the study of leprosy. While a Th1/Th2 dichotomy is suggested to play a critical role in human leprosy outcome, the role of regulatory (Tregs) and Th17 subsets in disease pathogenesis remains unknown. In this study, we investigated the possible role of Tregs and Th17 cells in response to M. leprae in the absence of a definitive experimental model for leprosy. Supported by grants from FAPESP (2009/06122-5).

Methods: Mice were infected with 1x10^6 bacilli per footpad (according to classic Shepard's technique) and three months were sacrificed; samples (footpads) were submitted to histopathological analysis and barcillary counting by cold Ziehl-Neeslen staining.

Results: As previously described, M. leprae footpad challenge did not result in the development of macroscopic leprosy-like lesions, but Ziehl-Neeslen staining demonstrated the presence of a significant bacillary load, associated with the presence of inflammatory cells (mainly epithelioid macrophages) in the surrounding connective tissue. As described to WT strain, no evidences of macroscopic lesions were observed in IL-17KO, IL-23KO, IL-6KO and CCR4KO mice strains. While no differences were observed between IL-17KO, IL-6KO and WT strains, our results showed a significant decrease in the numbers of bacilli in CCR4KO and IL-23KO strains when compared to WT mice.

Conclusion: These results suggest a detrimental role for Th17 and Treg subsets in the control of Mycobacterium leprae multiplication, since the absence of the Th17 related cytokine IL-23 and the Treg-associated chemokine receptor CCR4 affect the multiplication of the M. leprae bacilli in vivo. Further studies are required to confirm such data and to clarify the mechanisms by which such molecules could be implicated in the control of M. leprae and possibly in the pathogenesis of leprosy. Supported by grants from FAPESP (2009/06122-5).

P-112

Abstract Topic Name: Immunology
Presentation Screen Number: 9
Presenter: Mariane Stefani

THE IMPACT OF MULTIDRUG THERAPY ON CELL MEDIATED AND HUMORAL IMMUNE RESPONSES TO MYCOBACTERIUM LEPRAE PROTEIN ANTIGENS

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Introduction: The differentiation of paucibacillary (PB) and multibacillary (MB) leprosy is not only important to define multidrug therapy regimen (MDT) but also because MB patients represent the main disseminators of the bacilli and are also at increased risk of complications such as reactional episodes. Leprosy diagnosis is still based on clinical signs and no laboratory test is commercially available for its diagnosis, prognosis or to monitor MDT. A laboratory test for leprosy diagnosis or prognosis needs to consider the dichotomy in immune responses in which such molecules could be implicated in the control of M. leprae and possibly in the pathogenesis of leprosy. Supported by grants from FAPESP (2009/06122-5).

Results: Among newly diagnosed untreated MB patients the IFNγ production to M. leprae proteins was low/absent ranging from 0 to 10pg/ml. Among the post-MDT MB patients, IFNγ production was detected to LID-1 protein only (p=0.03). Among newly diagnosed untreated PB patients IFNγ production to all M. leprae was above the cut-off. After the conclusion of MDT a decrease in the production of IFNγ to most proteins was observed (p=0.002) whereas an increase in IFNγ production was only observed to LID-1 fusion protein (p=0.05). Seropositivity to rML among newly diagnosed untreated MB patients ranged from 40% (92%) to 90% (LID-1, 70%), which were anti PGL-I positive. Among the post-MDT MB patients a significant decline in the IgG response to all proteins was detected (p=0.005) and 20% remained seropositive (LID-1, ML0405 and 92). In contrast, most of the post-MDT MB patients remained seropositive to PGL-I (p<0.05). Among PB patients before MDT, the seroreactivity to all M. leprae and to PGL-I was below the cut-off. No change in this serological profile was observed after MDT.

Conclusion: Surprisingly most MB patients, that are anergic to M. leprae before MDT, presented CMI to LID-1 protein after completing MDT. Among PB leprosy patients, known to have a strong specific CMI before treatment, MDT caused a decline in the response, except to LID-1 protein. The serologic response to M. leprae in the MB group declined post-MDT, however absent/low serological response of PB patients was not changed by MDT. The meaning and potential applications of CMI response to LID-1 protein for monitoring MDT among PB and MB patients deserve further studies.

CASE REPORT: CLINICAL AND SEROLOGICAL PROFILE OF A POSSIBLE RELAPSE OR REINFECTION OBSERVED DURING UNIFORM MULTIDRUG THERAPY U-MDT (U-MDT)

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Introduction: A uniform regimen of multidrug therapy for leprosy (Brazil U-MDT/CT BR) consisting of 6 months treatment with Rifampicin (monthly), dapsone and clofazimine (daily) for both multibacillary (MB) and paucibacillary (PB) patients is under way in two highly endemic regions in northeast and north Brazil. In this open-label, randomized clinical trial U-MDT outcomes are compared to regular MDT (6 months for PB disease and 12 months for MB leprosy). Relapse, defined as the reappearance of signs and symptoms after completing MDT is one of the important outcomes monitored. Relapses have been associated either with irregular or incorrect MDT regimen or drug resistance and they usually occur 5 years after MDT. Relapses can include skin signs (new lesions or enlargement of previously observed lesions) or neural signs (hypersensit, new anesthetic areas, increase or loss of sensitivity in previously affected skin areas). This is a serologic and molecular study of one possible case of relapse or reinfection observed in the Brazil U-MDT/CT BR arm that received 6 months treatment.

Methods: This patient was monitored monthly during the first year and then yearly for the next 3 years. During follow up one blood sample was collected at each visit including diagnosis, at the end of U-MDT and in the post-U-MDT period in a total of 14 visits/ sequential samples. Serum samples collected during this period were used to study the serological response employing ELISA to detect IgG antibodies to LID-1 fusion protein (cut-off >0.300) and IgM antibodies to PGL-I (cut-off >0.250).

Results: At leprosy diagnosis this 36 years male patient from Fortaleza, Ceará had >10 disseminated skin lesions, reduced termic sensitivity and joint pain in the superior and inferior limbs. The bacilloscopic index (BI) during diagnosis was 4+, and the patient was classified as borderline-lepromatosus/BL, according Ridley Jopling (clinical, histopathological and bacilloscopic) criteria. Following randomization this patient was part of the U-MDT arm receiving 6 months treatment. At diagnosis anti LID-1 and PGL-I were highly positive (LID 1 0.13, PGL-I OD=0.837) and high antibody titers were detected during the next 5 months after initiating U-MDT (anti-LID-1 IgG OD range=1.339 – 1.991; anti PGL-I IgM OD range=0.661 – 0.850). In the second and third months after completing U-MDT antibody levels declined (anti-LID-1 IgG OD=0.807 and 0.753; anti PGL-I IgM OD=0.605 and 0.604). In the 5th month after conclusion of U-MDT serology remained low reaching values below the cut off. In the 6th month after U-MDT antibody levels started to fluctuate and 18 months after completing U-MDT the patient developed Type 2 reaction and neuritis and was prescribed with thalidomide and prednisone. Around 48 months after completing U-MDT, new nodular lesions appeared and the BI+5 was detected and lesions biopsied for histopathological examination, which revealed lepromatous form. M. leprae bp1/1, gyrA, rpoB gene sequencing did not reveal any drug resistance mutation to dapsone, rifampin nor quinolones. Therefore this patient was considered a relapse case and regular 12 months MDT for MB leprosy was started although possible reinfection cannot be excluded.
Conclusion: Significant decay in antibody levels was observed after completing U-MDT, however the fluctuation observed 18 months after was probably associated with bad prognosis which included T2R, relapse or reinfection. Whole M. leprae genome sequencing at diagnosis and during relapse or reinfection may potentially contribute to clarify this patient’s outcome.

P-021
Presentation Time: Thursday 19/09/2013 at 12:30 – 12:40
Abstract Topic Name: Stigma
Presentation Screen Number: 10
Presenter: U. H. Thakar

EMPOWERMENT OF LEPROSY AFFECTED PERSONS TO FIGHT AGAINST STIGMA AND DISCRIMINATION.

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1National Forum India, Hyderabad, 2IDEA-INDIA, Erode-Tamilnadu, India

Introduction: Over the centuries Leprosy Affected Persons have been stigmatized. Misconceptions, deformities, non availability of effective medicines were some of the reasons. Society and Family members segregated them from the mainstream. Leprosy affected persons have left no option but to seek shelter either in Asylums or in Leprosy Colonies. Law also discriminates affected persons. Some of the Indian Acts are having derogatory provisions against leprosy affected persons. As a result many of them are living in a miserable condition.

Methods: Survey of leprosy colonies was conducted with a view to identify their needs, problems & social issues. 800 colonies were identified. Derogatory provisions of the Acts were examined. Empowerment workshops in 22 states were organized. State wise leaders & team from the colonies were selected. Capacity building programmes were organized for them. Awareness about their rights, duties and welfare schemes were organized. Law professionals were invited to orient, Leprosy Affected Persons about their human rights. National Forum has provided platform to share their views, experiences, feelings and expectations.

Results: State team and colony people regain confidence. Voice of the affected persons is now being heard at various levels. Petition was filed before Petition Committee of Parliament. Government has taken action on the recommendation of the committee. More than 150 cases were referred to Human Right Commission. 90% cases were decided in favor of affected persons. Civic amenities are being provided to leprosy colonies on Intervention of Human Right Commission. Public Interest Litigation (PIL) was submitted to Supreme Court of India seeking amendments in the provisions of the derogatory Act. Odisha Government amended local Panchayat Election Act. Leprosy Affected Persons are seeking details of Government schemes & expenditure incurred under “Right to information Act”, Leprosy Affected Persons are being invited in decision making process at Government level and WHO has given guidelines for strengthening participation of affected persons in leprosy services.

Conclusion: Net working among colonies, individuals, Government & NGO’s along with Training & socio-economic empowerment, leads a way to dignified life without stigma & discrimination.

P-024
Presentation Time: Thursday 19/09/2013 at 12:50 – 13:00
Abstract Topic Name: Stigma
Presentation Screen Number: 10
Presenter: Tae Chun Lai

PROMOTING TRANSNATIONAL WORLD HERITAGE OF HANSEN’S DISEASE HISTORICAL SITES AND SPIRIT.

T. C. Lai 1,2

1Architect, Architect Sawa LAI and associates, 2secretariat, IDEA Taiwan, New Taipei City, Taiwan

Introduction: Now people could continue the issue and keep trying to make strong linkage to each other. I will thank IDEA international; Anwe and Henry held a formal conference to make international net from 2012 in Seneca Falls of USA. I know the issue gradually gathering solidarity all over the world. And I know Sasakawa Foundation also prepared a wonderful workshop to promoting the work last year October. Like the several topics discuss in this congress, everybody here all involved in the evolution of HD history. The most important thing is the cooperation between WHO, non-government organization, religions, and the individual affected by HD, the participants here have change the darkest history of leprosy; make a significant contribution to human civilization. Wish to promote “TWH of HD” has a symbolic meaning: to get Nomination to remind the world the road “Isolation to Integration” is really very cherish to leave future generation to honor all the old generation affected by Hansen’s Disease.

Methods: This paper is based on my action research which participated in the international campaign for Hansen’s disease with Lo-sheng in Taiwan and Solocuk island in Korea. Besides, I prepared the “International Workshop of HD” on March 3-7, 2009, in Taiwan offered a platform for discussing the conversation.

Results: Fortunately, the workshop in Taiwan become a mile stone for stigma reduction movement because at that time met Taiwan authority was planned to demolish many cherish architecture and landscape of Lo sheng Sanatorium and people here faced eviction. There were our members of IDEA International, almost 100 people from 7 countries, Korea, Japan, Norway, Malaysia, Guam, and United states to Taiwan concerned the eviction and demolition. It is the first time everyone started to think about the issue “Transnational World Heritage Nomination of Leprosy / Hansen’s Disease”. At the same time, the UNESCO World Heritage Centre and ICOMOS have been assisting the States Parties in identifying new types of properties for World Heritage nomination, such as the Silk Roads for serial and nomination, spanning a quarter of the globe. With my Statistics for the database of the global project of Leproxy History, I disclosures there were more than 505 leprosarium which spread more than 78 countries in the past centuries. But as we know it’s just a tip of the iceberg, we can say the leprosy / Hansen’s disease historical sites are similar to the Silk Roads, traced to almost 2000-4000 years of human civilization, spanning in different area of the world, rich of historical and cultural diversity. Moreover, the evolution of policies in modern, the medical and scientifically contributions and universal values of human rights all related to the transnational achievement and shall meet the World Heritage list.

Conclusion: Now people could continue the issue and keep trying to make strong linkage to each other. I will thanks IDEA international. Like the several topics discuss in this congress, everybody here all involved in the evolution of HD history. The most important thing is the corporation between WHO, non-government organization, religions, and the individual affected by HD, the participants here have change the darkest history of leprosy; make a significant contribution to human civilization. Wish to promote “TWH of HD” has a symbolic meaning: to get Nomination to remind the world the road “Isolation to Integration” is really very cherish to leave future generation to honor all the old generation affected by Hansen’s Disease.
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Introduction: The importance of stigma in the context of leprosy has been acknowledged. The usual way to address stigma is through educational messages in the media. Thus far, to the authors knowledge, techniques to involve people affected by leprosy in exploring issues and voice concerns through creating their own comics has not yet been applied. A comic is a story in a pictorial form, often incorporating text and presented in panels. The approach is promising because of the empowering process and inexpensive, easy to distribute and potentially powerful end-product. The aim of this poster is to reflect upon the process and share lessons learnt.

Methods: This study is part of the Stigma Assessment and Reduction of Impact (SARI) Project in Cirebon District, West Java, Indonesia. The SARI project aims to implement and assess the effectiveness of three stigma-reduction interventions. The comic-making activity is part of the contact intervention that primarily aims to change attitudes and beliefs of the community. It brings people affected by leprosy and community member into contact, either indirectly through the comics, or directly, if the artist presents about the comic.

The first two-day comic workshop took place in November 2012. The ‘Grasroot comics – a development communication tool’ by Packalen & Sharma was used as a guideline. The workshop can be divided in two parts: i) enhancing drawing skills, and ii) making the actual comics (finding message and story). In total, ten young people affected by leprosy participated; four women and six men. This study draws upon a range of qualitative methods including observations, informal interviews and focus group discussions.

Results: During the first workshop 14 comics were developed. Key messages the participants wanted to bring across included: i) leprosy is curable, ii) medication is free, iii) leprosy will not spread after medication is started, iv) there are more people affected by leprosy, v) friendship is imperative, and vi) people affected can work and be successful. Often one comic conveyed multiple messages. Some comics depict discrimination, for example, children who do not want to buy noodles from an affected person, because ‘your skin is very dirty’. Also the strength of people affected is an important theme illustrated by the title ‘patience and resilience’.

The comics were a means through which the participants were able express experiences of their own life. Overall, the participants indicated they enjoyed meeting new people, the comic-making process and were proud with, as one participant put it, the ‘worthwhile’ end-result. A potential advantage is the possibility for anonymity, but all artists wanted their name written under the process and were proud with, as one participant put it, the ‘worthwhile’ end-result. A potential advantage is the possibility for anonymity, but all artists wanted their name written under the end-product. The aim of this poster is to reflect upon the process and share lessons learnt.

Conclusion: Comics seem a powerful tool for people affected by leprosy to express themselves. Comics can convey multiple simple but indispensable messages for stigma reduction and stress important life experience such as discrimination and resilience. The impact of the comics in the community is being studied. This will determine its utility as a stigma-reduction strategy.
Conclusion: The OBA tool has helped FAIRMED to develop a cost-effective mechanism for supporting the hospitals by taking into account the realistic figure for their expenses.

Results:
A total of 91 patients were included in the study. The average duration of stay in the hospital was 14 days. The minimum stay was for 3 days and the maximum duration of stay was 38 days. Of the 91 patients who were included, 42 were females and there were 49 males.

The analysis of the data collected showed that 83 (91.21%) patients were satisfied with the care at admission and 8 (8.79%) were moderately satisfied. 79 (86.81%) were satisfied with the comfort needs provided and the remaining 12 (13.19%) were moderately satisfied. 89 (97.90%) were satisfied with the nutritional needs and 2 (2.2%) were only moderately satisfied. 85 (93.41%) patients were highly satisfied with the psychological care provided and 6 (6.59%) were only moderately satisfied. 47 (51.65%) were satisfied with various procedures done for them, 23 (25.28%) were moderately satisfied while 21 (23.08%) were not satisfied with the care. 69 (75.82%) were highly satisfied with the hygienic needs provided, 14 (15.39%) patients were moderately satisfied and 8 (8.79%) were not satisfied with the care and provision for their hygienic needs. 3 (37.36%) were highly satisfied with the provision of medications. 15 (16.48%) were moderately satisfied, but 42 (46.15%) patients were not satisfied with the administration of medications. The questions through which the satisfaction on administration of medications was assessed were about the information given regarding the side effects of medications and the information on the medications that need to be used at home.

Conclusion: The In patients are mostly satisfied with the care provided to them at the hospital. There were only two areas where the patients found some lacunae in the care provided to them. The patients were not satisfied with the information provided by the nurses regarding the medications and the side effects of the medications that were given to them. Another area of concern which caused patients to be dissatisfied with the care provided, was the lack of privacy provided to them. These areas need more attention. Adequate training provided to the nursing personnel regarding these specific needs would make them more empathetic towards these needs of the Leprosy affected who are admitted to the hospital.

LEVEL OF SATISFACTION OF IN-PATIENTS ON THE NURSING CARE PROVIDED TO THOSE AFFECTED BY LEPROSY
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Introduction: In the dynamic health care system that we live in, In-patient facilities in many hospitals treating Leprosy is static. Shortage of healthcare professionals and also infrastructure facilities is commonly seen. Patient satisfaction stands to play an important role in the growing push towards accountability among health care providers. The health care professionals work towards improving the quality of outcomes, enhance safety of patients and lower the cost of care. Greater attention and scrutiny needs to be given to the accounting in which patient satisfaction measurement can be integrated into an overall measure of clinical outcome.

Methods: This is a descriptive study conducted in a secondary level community hospital catering to the needs of Leprosy affected. All the patients who were admitted for a minimum period of 3 days and provided consent were included in the study. Convenience sampling method was used to collect data.

The instrument used for data collection was a questionnaire. An interview was conducted with each patient and a Visual analogue scale was used to assess their satisfaction in each area of care. The questionnaire had 7 different categories of care that included the care at admission, comfort needs, nutritional needs, hygienic needs, care during procedures, psychological needs and administration of medications.

Results: A total of 91 patients were included in the study. The average duration of stay in the hospital was 14 days. The minimum stay was for 3 days and the maximum duration of stay was 38 days. Of the 91 patients who were included, 42 were females and there were 49 males.

The analysis of the data collected showed that 83 (91.21%) patients were satisfied with the care at admission and 8 (8.79%) were moderately satisfied. 79 (86.81%) were satisfied with the comfort needs provided and the remaining 12 (13.19%) were moderately satisfied. 89 (97.90%) were satisfied with the nutritional needs and 2 (2.2%) were only moderately satisfied. 85 (93.41%) patients were highly satisfied with the psychological care provided and 6 (6.59%) were only moderately satisfied. 47 (51.65%) were satisfied with various procedures done for them, 23 (25.28%) were moderately satisfied while 21 (23.08%) were not satisfied with the care. 69 (75.82%) were highly satisfied with the hygienic needs provided, 14 (15.39%) patients were moderately satisfied and 8 (8.79%) were not satisfied with the care and provision for their hygienic needs. 3 (37.36%) were highly satisfied with the provision of medications. 15 (16.48%) were moderately satisfied, but 42 (46.15%) patients were not satisfied with the administration of medications. The questions through which the satisfaction on administration of medications was assessed were about the information given regarding the side effects of medications and the information on the medications that need to be used at home.

Conclusion: The In patients are mostly satisfied with the care provided to them at the hospital. There were only two areas where the patients found some lacunae in the care provided to them. The patients were not satisfied with the information provided by the nurses regarding the medications and the side effects of the medications that were given to them. Another area of concern which caused patients to be dissatisfied with the care provided, was the lack of privacy provided to them. These areas need more attention. Adequate training provided to the nursing personnel regarding these specific needs would make them more empathetic towards these needs of the Leprosy affected who are admitted to the hospital.

Introduction: Leprosy has a long incubation period and the early signs and symptoms are not painful. It is also misunderstood as a skin disease. Besides the stigma associated with leprosy plays an important role in the early diagnosis.

Identifying the delay if any and the reasons will help in reducing associated disability and start of MDT early and reducing the risk of transmission of the disease in the community.

Methods: LEPRAP India – Blue Peter Public Health Research Centre (BPHRC) is conducting a study on quality leprosy services provided at 12 PHCs in Krishna and Adilabad districts with the support of Indian Council of Medical Research (ICMR). The study period is from June 2011 December 2013. During the period 2011-12 in 12 Primary Health Centers situated in 2 districts of Andhra Pradesh in India 124 new cases of leprosy were detected. A detailed in-depth interview was done in these cases to obtain the history of events starting from early symptoms to the final diagnosis and start of MDT besides other information. We have to depend on recall of the patient or their relative for the history with its limitations. The data was entered in MS Excel and analyzed and the results are presented.

Results: Out of 124 Adilabad have 73 (58.9%) and Krishna 51 (41.1%) cases. Females are 47 (37.9%) and males are 77 (62.1%). It is observed that the clients first seek initial consultations with the private sector and later after a prolonged period they move to government health institutions for seeking further care and management.

The average delay in diagnosis is 429 days with an SD of 309 days. The average delay in females is higher by 63 days compared to males. There is no significant difference in delay between the 2 districts. The mean delay in diagnosis in children below 15 years is only 266 days compared to 538 days in the age group 30-50 years. In 22 (17.7%) cases diagnosis of leprosy was made within 6 months of the early symptoms of the disease.

There is no delay in starting MDT once diagnosis is made in 97 (76.4%) of the 124 cases in the government run PHCs. In 15 (12.15%) cases there is a delay of more than 10 days in starting MDT. It is observed that the delay in starting MDT was due to operational reasons in Krishna district.

Conclusion: In females more delay was there in diagnosis while in children delay was less. In 35 (28.2%) cases in the first visit itself diagnosis of leprosy was made while in 61 (49.2%) it was in the 2nd visit. The remaining 28 (22.6%) has to make 3 or more visits to arrive at the correct diagnosis. The reason being in many it was treated as a skin disorder. The study reveals that there is urgent need in sensitizing the private medical health care providers in the diagnosis and management of leprosy and coordinate with the government for the treatment.
beneficiaries include 151 reaction cases and 211 people with ulcers. The achievement of the centre also includes detection of 148 new cases.

Conclusion:
Two or more independent organizations working together achieve more effective result than they could by working separately.
• Has proved itself a good practice and a success model of GO NGO collaboration.
• Sustainability is ensured as the centre is fully operational within the public health care system but devolved and trained man-power is made available for the Referral Centre.

P-448
Presentation Time: Thursday 19/09/2013 at 15:30 – 15:40
Abstract Topic Name: Reconstructive Surgery
Presentation Screen Number: 1
Presenter: Rynmon Lanong

PROVISION OF RECONSTRUCTIVE SURGERY SERVICES TO UNDERSERVED POPULATION IN THE STATE OF ASSAM INDIA UTILISING ALL AVAILABLE RESOURCES AND INVOLVING ALL PARTNERS.

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1AFIO, Bangalore, India

Introduction: Persons Affectected by Leprosy from 5 neighbouring districts Sontipur, Sibsagar, Dibrugarh, Dibrugarh, and Lakhipur, underserved population that are difficult to access reeling under constant effects due to Tribal, Immigrant Social unrest, civil disturbances, added by repressive, natural calamities like flood during November and lack of Reconstructive Surgery facilities. There are no Leprosy NGOs’ nor Non-Leprosy NGO’s operating in this State providing Leprosy RCS Services. Efforts to involve Medical Colleges to provide RCS supporting National Leprosy Programme in the State did not yield result. A pilot study was initiated to provide RCS – leprosy services to underserved populations dwelling in these 5 Districts in Assam which is the transit State and main business centre for North Eastern States of India.

Methods: The State and District Leprosy Programme Officers where sensitised along with a local NGO – Catholic Hospital operating in a remote area ‘Borgang, Tezpur’ Sontipur District. A Physio-technician was made operative to collect available information, trace, assess, motivate and prepare/provide physiotherapy to cases fit for RCS. Expert RCS surgeon was engaged – who trained the Hospital Surgeon/Staff and carried out Surgeries in 3 (three) phases. The focus was to build up confidence in the mind-set of people and service providers. Physiotherapy appliances along with psycho-social support – and information dissemination had played a key role.

Results: From March 2011 to December 2011 a total of 172 patients were screened and 34 found to be fit for surgery and 18 patients agreed to undergo surgery (the rest were not willing for surgery) were operated (20 operations). Reconstructive Surgeries carried out in 3 (three) phases, including ulcer care, while the Surgeon and Staff of the Institution underwent training. The Exercise created awareness and demand for surgery among Persons Affected and the Community – cases started to report voluntarily for Surgery to the District Leprosy Programme and the local NGO. The District, State Health System got sensitized and participation increased.

Conclusion: This study has not only assessed the feasibility of providing RCS even in a remote area where there is an Institution with Surgery Facility but also brought out ownership of the Partners to address the need of the persons affected. It has also sensitised the State and District Health System and created interest to the partners in establishing RCS referral System and consequently more participation by both the Government Health System and the NGO Health Delivery System.

P-260
Presentation Time: Thursday 19/09/2013 at 15:40 – 15:50
Abstract Topic Name: Vaccines
Presentation Screen Number: 1
Presenter: Venaja Shetty

BCG IMMUNOTHERAPY AS AN ADJUNCT TO CHEMOTHERAPY IN BL-LL PATIENTS – ITS EFFECT ON CLINICAL REGRESSION, REACTION SEVERITY, NERVE FUNCTION, LEPROMIN CONVERSION, BACTERIAL/ANTIGEN CLEARANCE AND ‘PERSISTER’ M. LEPRAE

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1Deputy Director/Senior Scientist, *Director, The Foundation for Medical Research, 2Director, Bombay Leprosy Project, Mumbai, India

Introduction: Background and Objective: Multidrug therapy in leprosy has failed to eliminate the problem of persister bacilli. Clearance of bacterial antigens is extremely slow which could predispose to continued nerve damage even after release from treatment. In the present study the immunomodulatory efficacy of BCG vaccine administered post-MDT in BL-LL leprosy patients was investigated in depth with a view to determining if augmenting chemotherapy with immunotherapy would help in faster clearance of M. lepra/antigens, bring down the level of persisters and minimize the occurrence/severity of reaction and nerve damage.

Methods: This is a placebo-controlled study in treated BL-LL patients. The patients are matched with respect to age, sex, bacteriological index and history of reaction, stratified and allocated to the two groups. One group (Gr A) received two doses of BCG-MOSCOW (3.33x10^7 cells) and the other (Gr B) normal saline (0.85%), injected infra-dermally at 3 month intervals. The Primary outcomes assessed at the end of 6 months were bacterial/antigen clearance, lepromin conversion, granuloma clearance and the occurrence of persisters. The secondary outcomes were clinical regression, occurrence and severity of reaction and changes in nerve functions.

Material: A total of 107 BL-LL patients comprised of 49 in Gr A and 58 in Gr B; of which 36 and 42 respectively completed the study as per protocol, and are included in the final analysis.

Results: Findings: The study findings show that both the primary and the secondary out come cases were comparable in the two groups. Two doses of BCG administered post-MDT (Gr A) did not significantly alter the level of persisters or help in hastening the bacterial/antigen clearance, clinical regression of lesions and granuloma clearance. Lepromin conversion rates were also comparable. While the frequency of lepra reaction/ neuritis following the intervention was comparable, the severity of reactions was significantly higher in Gr A. On the positive side neuronal functions assessed by nerve conduction studies showed that deterioration of motor nerve conduction was significantly lower in the BCG arm. Since all patients developing moderate to severe reactions, immediately received a course of corticosteroids, it is possible that the timely use might have helped.

Conclusion: The study findings show that both the primary and the secondary out come cases were comparable in the two groups.

P-261
Presentation Time: Thursday 19/09/2013 at 15:50 – 16:00
Abstract Topic Name: Vaccines
Presentation Screen Number: 1
Presenter: Mohan Gupte

EFFICACY OF ANTI-LEPROSY VACCINES AFTER TEN-YEARS OF VACCINATION: COMPARATIVE LEPROSY VACCINE TRIAL IN SOUTH INDIA

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Introduction: We conducted a controlled, double-blind, randomized, prophylactic leprosy vaccine trial in a high leprosy endemic area in South India with the objective to assess the prophylactic efficacy of then available four candidate vaccines against progressive and serious forms of leprosy. Earlier BCG was withheld in the study area to study tuberculosis trends. However, as per the ethics committee recommendations, BCG was introduced in the area in programme mode. In 1991-93 a first re-survey was conducted during 1993-95 with the objective to remove missed prevalent cases during intake. We observed statistically insignificant negative effect of the vaccines in the first re-survey. Second re-survey was completed between 1997-98. The rationale, design and efficacy levels based on second re-survey had been published (Gupte et al, 1998). A third re-survey was conducted from 1999 to 2002 to assess the protective efficacy of candidate leprosy vaccines after 10 years. We report here vaccine efficacy for the vaccinated cohorts, household contacts and prior BCG vaccinated individuals.

Methods: The study area comprised of 300,000 people from 264 contiguous villages in Chingleput district, Tamil Nadu, India. Totally 171,400 (59% of the total area population) were recruited as healthy volunteers based on their voluntary informed written consent. Allocation to any of the four vaccines [BCG + Killed M. leprae (KML), BCG, ICR, Mycobacterium, w (M.w)] or placebo (normal saline) was randomly done. All the examinations were conducted by trained field investigators blinded to prior clinical or vaccination status. Final decoding was done in 2003. We estimated cumulative vaccine efficacy (%) and 95% Confidence Interval (CI) based on Mantel-Hanzel test adjusted for age, sex and arms for general population, household contacts and those with BCG scars.

Results: At the third re-survey, 68% of the original cohort and 90% of the available cohort were examined. Totally 168 new cases were identified. More than 70% of the cases were having single patch and 2% had smear positivity. At the end of third re-survey cumulative vaccine efficacy (95% CI) adjusted for arms, age and sex for individual vaccines was: BCG: 13% (2.25); BCG+KML: 39% (27, 49); M. w: 9% (4, 32) and ICR: 37% (20, 50). Among household contacts, the cumulative efficacy estimates (95% CI) were: BCG: 16% (14, 18); BCG+KML: 45% (27, 64); M. w: 45% (21, 82) and ICR: 46% (12, 66). The cumulative efficacy (95% CI) among those with BCG scar was: BCG: 15% (88, 62); BCG+KML: 77% (19, 94); M.w: 57% (22, 85) and ICR: 75% (20, 95).
P-207
Presentation Time: Thursday 19/09/2013 at 15:30 – 15:40
Abstract Topic Name: Epidemiological Surveillance
Presentation Screen Number: 2
Presenter: Abraham Selvasekar

POPULATION BASED LEPROSY REGISTRY AS AN ALTERNATE METHOD TESTED TO ASSESS & DOCUMENT THE MAGNITUDE OF LEPROSY IN URBAN METROPOLIS: ITS MERITS AND DEMERITS

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Introduction: Migratory shift of population in large number from rural to urban is becoming a serious phenomenon causes duplication of statistics, default from therapy, difficulties in implementing medical services and welfare schemes, destabilising health infrastructure meant for urban areas etc. In urban areas BDO, health care service providers are from the private sector, hence a sizable number of leprosy cases could go unreported to the national statistics. Leprosy being a stigmatizing disease naturally many would not prefer to get treated in crowded Govt institutions rather seeks a private medical practitioner (PMP) secretly. The PMP can be grouped into allopathy and non-allopathy. Non allopathy ie., Indian system of medicine can be further divided into Ayurveda (Ayuverda, Unani, Siddhi, Homeopathy), registered medical practitioners, bone setters, traditional healers, quacks etc. hence the patients can seek from a wide choice.

Delhi is one of the fastest growing metropolises with 17 million popn (2011 census). The city attracts huge migrant populations seeking livelihood options from the nearby states of Bihar, UP, Jharkhand etc. that are leprosy endemic. To recapitulate Delhi has peculiar problem of multiplicity of service providers, huge migrant population, and population mobility inter states. In response to this, a novel registry concept replicated from cancer control program to improve documentation in chronic diseases like Leprosy.

Methods: The method of developing a PBLR is described in 5 stages. First 4 defined areas has been selected preferably single ward in 4 strategic locations with boundaries each having a population of 1.25 lac. The selected areas are as follow Disha garden (1.1 lac popn), Seema puri (1.01 lac popn), Trilok puri (2.1 lac popn) & Prem nagar (1.1 lac popn) with a total aggregate of 5.3 lac populations. There are about 15 major gov and private hospital located in these areas and so far 427 PMPs have been identified. Stage 1: is the secondary data collection: leprosy cases identified from the prominent tertiary care institutions such as The Leprosy Mission, Guru Teg Bahadur, All India Institute of Medical Sciences, Ram Manohar Lohia, Safdarjung Hospitals etc traced back many years retrospectively and collected. The leprosy cases arising from these 4 areas segregated and stratified according to sex, grouping, treatment status, disability details etc. Stage 2: is locating the institutions under public sector and identifying the individual PMPs of both allopathy & non-allopathy Project staff made repeated visits to their clinics and collected information about leprosy cases treated by them. Stage 3: is updating the registry on monthly basis by the primary data collection. Stage 4: Medical camps followed by A modified leprosy elimination campaign (MLEC) type cost effective exercise was conducted in the study area. Stage 5: finally a house-to-house rapid survey was conducted.

Results: A total leprosy cases identified were 3975 (100%), of which stratified 3253 (82%) as MB forms as MD/MB 12-39 doses. Case on records and 282 (7%) were RFT ed cases 310 (96%) had WHO grade 1, 311 (8%) had WHO grade 2 418 (11%) from Delhi, 2246 (56%) from suburbs, 1311 (33%) from states. Far so 30 cases treated by PMP have been brought into the registry, updated on monthly basis.

Conclusion: PMP plays a significant role in treating leprosy and in updating the leprosy registry. In general, morethan 1/3 of the leprosy cases are getting cured without any visible disability; hence the need for maintaining such a labour intensive exercise is questionable.

P-208
Presentation Time: Thursday 19/09/2013 at 15:40 – 15:50
Abstract Topic Name: Epidemiological Surveillance
Presentation Screen Number: 2
Presenter: Dr Maria Katia Gomes

STUDY OF THE incidence OF LEPROSY IN CHILDREN UNDER 15 YEARS IN STATE reference CENTER POLYCLINIC OSWALDO CRUZ, PORTO VELHO (RO), 2007-2012

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Introduction: Leprosy is endemic in Brazil, specially in the north region. Besides the improvement in public health strategies and the introduction of multi drug therapy, the elimination of this disease continues distant in most parts of our country. Multidrug therapy for multibacillary forms (MDT/ MB) continues to be a safe and effective in the treatment of leprosy. However some relapse cases have been detected in Rondonia state in Brazil. The aim of this study is to present the results of relapse cases since 1997 to 2012 in this endemic state of the country.

Methods: The study was conducted through medical consultations and data described in medical records.

Results: We identified 39 relapse cases of MB leprosy, most of them was treated with DNDs MDT/MB 12-39 doses. Since the begining of this study we found one case in 1998, 2001, 2003, 2004; five cases in 2005; three cases in 2006; five cases in 2007; three cases in 2008; four cases in 2009; three cases in 2010; six in 2011 and five in 2012. Men were predominant. The period of new manifestations varied from 4.5 years to 20 years.

Conclusion: The results of this study demonstrate the need for monitoring post discharge patients. It is important to point out that relapse cases should be analized carefully and also the treatment approach that were ineffective. It is difficult to identify if this cases can be considered as relapse or re-infection. We believe that these cases may contribute to maintenance of endemic characterstic of leprosy. Reinforce the need for monitor cases of relapse/re-infection.

P-294
Presentation Time: Thursday 19/09/2013 at 15:30 – 15:40
Abstract Topic Name: Eye in Leprosy
Presentation Screen Number: 3
Presenter: Sijabat Alampur

CORTISONE INDUCED CATARACTS AND GLAUCOMA IN ERYTHEMA NODOSUM LEPROSUM

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Introduction: Erythema nodosum leprosum occurs mostly in lepromatous leprosy, occasionally in border line lepromatous leprosy. It can occur any time even during the course of the treatment or in long standing cases. These are immunological responses. Immune system plays an important in Leprosy how the disease develops. In these cases it is essential to use cortisones and sometimes repeated use. The cortisones are used in the dose of one milligram for one kg body weight for 12 weeks in tapering doses in our hospital we have followed up forocular complications.

Methods: In our outpatient department daily we get about new and old cases not only from our state from Maharashtra and Karnataka. We have studied the effect of cortisones in Erythema nodosum leprosum reactions in 100 cases which are admitted in our hospital. They were given
Results: We have used oral corticosteroids in all admitted ENL reaction patients. Out of which we have taken up 100 cases for our study. 45 patients were followed till the end. Cataract was seen in 8 patients. The mechanism of development of cataract is not understood. The development of Glaucoma is due to changes in mucopolysaccharides in trabecular meshwork, causing hindrance to the drainage of aqueous resulting in raised intra ocular pressure.

Conclusion: Development of cataract and Glaucoma is irreversible but can't be interfered during the course of treatment or relapses. The glaucoma can be controlled by using the topical drops. The use of corticosteroids in saving the life of patients outweigh the complications but one should be cautious. In mild reactions use of non steroid anti inflammatory drugs with antibiotics may be sufficient.

Methods: At the Leprosy Research Center, National Institute of Infectious Diseases (Tokyo, Japan), we keep a database of all cases of Buruli ulcer diagnosed in Japan. We analyzed the records of 36 cases in this database using both qualitative and quantitative methods.

Results: Twelve (33%) were male, and 24 were female (67%). The age distribution was 8, 18, and 10 cases for 0-15 year-old, 16-60 year-old, and over 60 year-old, respectively. Cases were reported sporadically across the country, but some prefectures (similar to states) had concentration of cases such as Okayama where they had a total of 9 cases diagnosed to date. Out of the total, 22 (61.5%) were cases diagnosed 2010 onwards. 29 cases (81%) were category I, 7 cases (19%) were category II, and 0 cases (0%) were category III. Nine (25%) had achieved complete cure by treatment with rifampicin, clindamycin, and levofloxacin regimen. We performed 16S rRNA sequencing in 27 cases (75%), and M. ulcerans subsp. shinshuense was identified in all these cases.

Conclusion: Our cases of Buruli ulcers are unique with particular distribution and pathogen. A further case finding and epidemiological study is needed in Japan, for there lies a possibility of hidden cases due to low awareness. Though we only have small number of cases diagnosed as of now, investigating in-depth of these cases may aid us in discovering the unknown aspects of the disease including the mode of transmission and its vector(s).
WORK OF ASOCIACIÓN FONTILLES IN INDIA

Methods: We conducted a family-based study and the analysis was performed using the Transmission Disequilibrium Test (TDT). A total of 447 individuals, including 147 leprosy cases, distributed for 125 nuclear families were recruited from the microregion of Armañón, a hyperendemic area of Brazil. The software FBAT v2.0.3 was used for the analysis. Then, we searched for published reports about association studies correlating polymorphisms and leprosy in Medline. The eligible studies were selected using pre-established criteria and their data were combined with the results of TDT in the meta-analysis to define consensus odds-ratio (OR) estimates. Three papers were included in the IFNG+874 T/A meta-analysis, with a total of 3565 individuals involved (1561 cases), while six papers were used for the IL10 -819 C/T, involving 5097 individuals (2015 cases). Meta-analysis was performed with fixed-effects model assuming homogeneity between studies. Results: No association was observed between IFNG +874 T/A (P = 0.977) and IL10 -819 C/T (P = 0.910) and the susceptibility to leprosy in the family-based study. However, meta-analysis found statistically significant results for both SNPs. It showed a protective effect of the IFNG+874 T allele (Pooled OR = 0.841; 95% CI 0.754-0.939; P = 0.003). The IL10 -819 T allele was associated to disease susceptibility (Pooled OR = 1.28; 95% CI 1.177-1.384; P = 0.001).

Conclusion: The results of meta-analysis suggest the role of IFNG+874 T/A and IL10 -819 C/T as genetic markers for leprosy susceptibility, but further studies will be required for conclusive validation.

Results: At present Fontilles collaborates in 5 different health related projects in India: Gujarat, Karnataka and Madhya Pradesh with local partners and under the coordination of the institution’s representative in India, B. Vijayakrishnan. The projects cover different aspects of the disease: case detection, public awareness and perception of the disease, training health personnel and rehabilitation and social and economical care of the individuals affected. The projects that are being carried out by Fontilles in India are:

- Collaboration with Jabalpur Reference Centre of Victorian Hospital, Madhya Pradesh.
- Elimination of leprosy and mainstreaming of leprosy related services in Bangalore, Karnataka.
- Work with the Parbatsai leprosy hospital, Surat, Gujarat.
- Collaboration with the Arogya Matha Health Centre, Harapanahalli, Karnataka.

Conclusion: The control of leprosy in any country has to be coordinated with all the partners implicated with the individuals affected by the disease. From the very beginning of its international collaboration the Asociación Fontilles has always worked with local social/religious partners and relied on the support of the local health authorities responsible for the control of leprosy and other international organizations implicated in this field to improve the coordination and services needed by the affected individuals.

EVALUATION OF THE IMPACT OF THE LEPROSY MISSION’S SUPPORT TO LEPROSY CONTROL IN MARADI REGION, NIGER REPUBLIC

Introduction: The Leprosy Mission (TLM) has supported leprosy work in the Maradi region for over 2 decades. The work is conducted through our partners, the Ministry of Health and the evangelical missionary society, SIM. Over the years, the work that TLM has supported has grown from medical management only to physical and socio-economic rehabilitation, the latter in collaboration with IDEA Niger. In April 2012, an evaluation was conducted in the work in the Danja area of Maradi Region. The evaluation looked at the achievements and impact in the SIM-owned hospital, the field leprosy programme and the targeted communities.
Methods: Using participatory learning methodology where possible, the evaluation collected both quantitative and qualitative data from key informants, including hospital staff, community members and people affected by leprosy themselves.

Results: The main achievements include:
- Key indicators for leprosy control, POD and socio-economic issues show improvement over the past 5 years.
- Infrastructure development at the referral hospital to improve the quality of services provided to people affected by leprosy.
- Training of key staff for sustainable quality care.
- Improved management of leprosy complications.
- Development of cooperative groups in the 5 targeted communities.
- Literacy classes, in particular with the women.
- Food security has been addressed and seed banks have been improved.
- Various trainings were offered to the communities including financial management and leadership training.
- Self care groups and self care implementation in the community has resulted in fewer ulcers, decreased ulcer recurrence and fewer hospital admissions.

Lessons learned include:
- Community development in a group of people with a very low baseline income and capacity level will take a long time with a lot of input initially to get them up to a level comparable to surrounding communities.
- The outcome after trainings without follow up will be poor and may not achieve the objective to reach out to the wider region of Maradi.

Conclusion: Sustainability of the impact of this programme is dependent on the continuation of a combination of hospital and community work – community-based rehabilitation with a strong relationship with the specialist services available at Danja Hospital. The great benefit of the current 5 communities is worth sharing so the plan is to expand the CBR programme into other communities.

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Presentation Time: Thursday 19/09/2013 at 15:30 – 15:40
Abstract Topic Name: Detection and Treatment of Reactions
Presentation Screen Number: 6
Presenter: David Scollard

RISK FACTORS FOR LEPROSY REACTIONS IN THREE ENDEMIC COUNTRIES

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Introduction: Reactions and neuritis are major complications of leprosy. The goal of this study was to ascertain risk factors for these complications in leprosy patients at the time of diagnosis and during multiple drug treatment (MDT).

Methods: Newly diagnosed patients were enrolled in this prospective study conducted in Goias and Manaus, Brazil; Cebu, Republic of the Philippines; and Lalgadh, Nepal. A standardized history and physical exam were performed at the initial visit and these were repeated at the time of a reaction or, if no reaction occurred, at the end of the treatment period. Patients were excluded from the study if they were treated with corticosteroids immediately prior to the initial visit, or if poor follow up was anticipated due to distance from the clinic. Baseline (pre-treatment) data were analyzed using a case-control approach; follow-up data during MDT were analyzed as a cohort study.

Results: Of the 1972 patients enrolled in this study, 22% had a reaction or neuritis at the first visit, prior to treatment. Overall the most frequent event was Type 1 reaction (13.7%) followed by neuritis with no signs of reactions (6.9%) and 14% of Type 2 reaction. At baseline, Type 1 reaction was diagnosed in 14.6% of males and 12.1% of females, and T2R in 1.6% and 1.7% respectively. Overall, nutritional status was not significantly associated with reactions or neuritis. MB forms were more likely to be independently associated with reactions or neuritis combined. Of 581 patients followed to completion of MDT, the overall incidence of acute events (T1R or T2R or neuritis) was 33.3%. The incidence of any event was 54.5% in the 22% who had a reaction or neuritis at baseline. Of the 1972 patients, respectively, indicating that reactions are not the result of treatment. Among patients who did not have a reaction at the time of diagnosis, T1R and T2R occurred during MDT in 16.7% and 3.3%, respectively, comparable to baseline data.

Complications occur in both lepromatous and tuberculoid patients during treatment, but at a 3-fold greater frequency in lepromatous disease. Reactions and neuritis occurred in many children with single lesion disease, although children had the lowest incidence of these complications. The risk of reaction appeared to be correlated with increasing age. The incidence of T2R may be underestimated because of the exclusion of patients who had received corticosteroids prior to presentation.

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Presentation Time: Thursday 19/09/2013 at 15:40 – 15:50
Abstract Topic Name: Detection and Treatment of Reactions
Presentation Screen Number: 6
Presenter: Meenu Sethi

ROLE OF THALIDOMIDE IN THE MANAGEMENT OF ERYTHEMA NODOSUM LEPROSUM REACTIONS – EXPERIENCES REPORTED FROM REFERRAL HOSPITAL IN DELHI

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Introduction: Leprosy is a chronic disease caused by Mycobacterium leprae. Patients affected by leprosy are prone to reactions based on their clinical and immunological characteristics. Apart from the usual manifestation of anaesthetic patches and loss of sensation in the extremities, leprosy also manifests as Reversal and ENL. The oral corticosteroids when given to ENL patients for a prolonged period, leads to its dependence and to other metabolic problems which becomes a reason of concern. Thalidomide is the miracle drug which can be used as a steroid sparing drug. Following Shekhar's serendipitous discovery in refractory ENL in 1961, it has been a good choice for men and post menopausal women particularly in chronic recurrent ENL. The only limitation of this drug which led to a major tragedy in 1961 owing to its disastrous teratogenic effects. It was later granted approval by the US FDA in 1998.

Methods: This study was carried out in a leprosy referral centre in Delhi, all the patients treated for ENL during 2008-12 were taken into consideration and the data of the patients were retrieved and analyzed retrospectively. A total of 215 patients exhibited ENL, were initiated on standard tapering course of Prednisolone according to the protocol. Majority of them (> 95%) responded well to therapy. However 6 of them had severe recurrent ENL, dependency to higher doses of steroids with added complications. Increased doses of clofazimine and/or photophylline tried but proved futile. Also, Alazolamide could not be used because most of patients had anemia or past history of Tuberculosis (TB). Hence these 6 (9%) patients were considered for thalidomide therapy. Before commencing the treatment all routine investigations like complete blood count, chest x-ray, urine pregnancy test and ultra soundogram were done. They were hospitalized, counseled and written consent was obtained from the patients/spouses before starting them on thalidomide. They were advised strictly about usage of condom even after withdrawal of thalidomide for an extended period of 3 months. Thalidomide was administered in the following tapering doses: 100 mg thrice daily, followed by twice daily and once daily lasting for 3 months.

Results: The frequency and the severity of ENL came down drastically after administering thalidomide. Steroid dependency and steroid induced complications reduced significantly. The hospital had to bear the entire cost of thalidomide and inpatient charges incurred. The cost of each thalidomide capsule was Rs. 80 (Indian Rupees); the costing of 3 month course is approximately Rs 14,400 losing its affordability. It is a huge financial liability for the hospital, moreover to the patients when getting admitted for extended period losing their source of income leading to serious financial instability expecting the hospital for extended support.

Conclusion: Thalidomide is a useful and indispensable drug in the management of ENLs at least for a small proportion of patients. An expert committee comprising of State Leprosy officer, a Leprologist / Dermatologist and an experienced Physician should be constituted at all high endemic states in India. Supply of Thalidomide should be made available in the state capital under Nation Leprosy Eradication Program (NLEP), get approved case-by-case by the committee; supplied either free of cost or in a subsidized manner. There is a need to conduct clinical trials on newer analogues of the Thalidomide like lenalidomide or Pomalidomide.
IDENTIFICATION OF CLINICAL, EPIDEMIOLOGICAL AND LABORATORY RISK FACTORS FOR LEPROSY REACTIONS DURING AND AFTER MULTIDRUG THERAPY

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Introduction: Although the highly effective multidrug therapy (MDT) against leprosy, difficulties persist in the clinical management of leprosy reactions. As these acute episodes are recognized to be closely related to morbidity and disability, this study evaluated an addition of new variables, at both times of diagnosis and medical discharge, that could be predictive factors for leprosy reactions during and after MDT, in order that the determination of risk groups can promote improvements in the prevention, treatment and monitoring, thereby preventing nerve damage and the appearance of impairments.

Methods: Clinical, epidemiological and laboratory data from 440 leprosy patients, including patients affected by reactions during or after treatment and patients without reactions, were evaluated. Results of BI and PCR in skin smears, anti-PGL-1 ELISA, Mitsuda test, CBC and biochemical blood tests were analysed. Logistic regression, odds ratio (OR) and Spearman correlation were applied for statistical analyses at significance level of 0.05.

Results: Among the 440 patients, 57% (251/440) had reactions during and/or after multidrug therapy (MDT), of which 80.5% (202/251) presented Multibacillary (MB) leprosy. At diagnosis, positive BI (OR= 6.39; 95% CI: 4.1 to 10.1) and PCR (OR=0.15; 95% CI: 5.4 to 15.5) in skin smears, anti-PGL-1 ELISA (OR= 4.77; 95% CI: 2.9 to 7.9), leucocytosis (OR= 9.9; 95% CI: 3.9 to 25.7), thrombocytopenia (OR= 5.72; 95% CI: 2.3 to 14.0) and elevated serum lactate dehydrogenase (LDH) (OR= 2.38; 95% CI: 1.4 to 4.0) were potential predictive factors for leprosy reactions during treatment. A direct correlation was observed between the quantity of reactions in this period and BI (r = 0.22; p = 0.0019) and anti-PGL-1 ELISA (r = 0.25; p = 0.0007). The Mitsuda test at diagnosis correlated inversely with the amount of reactions during the treatment (r = -0.22; p = 0.0132). After treatment, positive BI (OR= 8.47; 95% CI: 4.7 to 15.3) and PCR (OR=6.46; 95% CI: 3.4 to 12.3) in skin smears, anti-PGL-1 ELISA (OR= 2.29; 95% CI: 1.3 to 3.9), anaemia (OR= 2.36; 95% CI: 1.2 to 4.5), leucocytosis (OR= 4.14; 95% CI: 1.5 to 11.6) and thrombocytopenia (OR= 3.70; 95% CI: 1.3 to 2.2) were risk factors for reactions in this period.

Conclusion: The association of the bacterial load and the prevalence of immunologically unstable borderline patients in endemic areas could justify higher frequency of reactions among MB patients. The presence of leucocytosia and thrombocytopenia could indicate underlying inflammatory processes, or infection that would trigger the reaction. Elevated serum lactate dehydrogenase, which observed during cellular damage, could be due to nerve injury. The increase in antibody production could be consequent to increased bacterial load/hence stimulating the development of reactions. Onset of Mitsuda test increases, the bacterial load decreases, consistent with the inverse correlation with the number of reactions during treatment. Higher frequency of reactions during treatment than after treatment probably due to bacterial clearance and improved cell-mediated immunity might be absent in the test. The identification of likely predictive factors for the occurrence of leprosy reactions during and/or after MDT can contribute significantly to the characterization of risk groups, supporting the implementation of new strategies for the prevention, control and management of leprosy reactions, which will allow an action planning a timely manner to prevent nerve damage and therefore not appearing disabling sequelae, which has held festismaoal this disease.

Each group has a role in their communities in begging, directing traffic, singing religious poetry, or teaching Islam. This study aimed at gaining ideas for community-based rehabilitation (CBR) in Northern Nigeria by studying the role of such traditional leaders.

Methods: A literature study was done about the role and history of sarakuna.Interviews (n=26) were held with sarakuna, Disabled People’s Organizations (DPOs), government officials, NGOs, deaf and blind children, members of the Emirate Council and individual persons with disabilities. In addition, six FGDs were held with disabled persons and two with sarakuna themselves to explore their views about the role and position of the sarakuna.

Results: Respondents indicated that the “sarakuna” mainly have a social function and are seen as “father and judge” among their people, especially “when there is a misunderstanding between people... he will try to solve the problem and to change the people without involving others, because he knows the people”. Sarakuna have limited access to government officials, because they are not well educated or don’t know how to approach them. Existing DPOs in a district, however, often work together with sarakuna. In practice, many persons with disabilities have little access to the sarakuna (for example women, those who live far away, or are very poor). Among NGOs, DPOs and government bodies, sarakuna are seen as grassroots leaders. Although having some respect, community members view sarakuna as ‘beggers’ and belonging to the lowest class of society. Disabled persons mention that sarakuna are often old, not well educated and having problems in communicating. They feel they have no influence on decisions by sarakuna.

Conclusion: Sarakuna are important in Hausa culture, but many disabled persons don’t think their role is essential. Disabled women hardly have access to them, whereas disabled men feel they have little influence, as this is confined to a small group around the sarakuna. The activities of sarakuna are limited, and of limited use to their constituencies. Sarakuna hardly seem to cooperate with other stakeholders involved in rehabilitation. Their cooperation with DPOs seems essential if they are to contribute to CBR programmes. Training in advocacy, lobby and leadership would be helpful, including of some of their immediate advisors.

THE ROLE OF TRADITIONAL LEADERS IN THE REHABILITATION OF PERSONS WITH A DISABILITY IN NORTHERN NIGERIA

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Introduction: Different studies on Hausa culture in Northern Nigeria find that disabled persons are regarded as valuable members of the society. Traditionally leadership plays an important role in Hausa culture. In Northern Nigeria disabled persons are organized in four groups, each with their own traditional leader (sarakuna): the Blind (sarkin makki), the Deaf (sarkin gurami), persons with limb-related disabilities (sarkin guragi), and persons affected by leprosy (sarkin kura).

Methods: A community-based participatory action research method in which right holders & service providers collaborate. Pictures with captions provide a creative and effective way to record and discuss often difficult and deeply felt issues and mobilize grassroots’ groups to affect changes. This approach allows for participants’ voices to be truly heard. This voice was hoped to be a better starting point for a multi-actor CBR project than conventional planning methods.

Results: Photo-voice documented difficulties in PWD performing their daily activities, and their dependence on family. Village Development Committees, DPOs, local leaders and politicians attended exhibitions. Impact included awareness of family circumstances at village level, PWD getting to know each other, awareness of officials and leaders about PWD, DPO & SGC formation, plans at VDC level, accelerated issuing of PWD ID cards, and inclusion of leprosy in CBR. Community-driven activities followed.

Conclusion: Photo-voice effectively identified existing community problems & issues through real life. All these inputs were used in a collaborative planning of a CBR approach to address real problems in real life.

Each group has a role in their communities including begging, directing traffic, singing religious poetry, or teaching Islam. This study aimed at gaining ideas for community-based rehabilitation (CBR) in Northern Nigeria by studying the role of such traditional leaders. A literature study was done about the role and history of sarakuna. Interviews (n=26) were held with sarakuna, Disabled People’s Organizations (DPOs), government officials, NGOs, deaf and blind children, members of the Emirate Council and individual persons with disabilities. In addition, six FGDs were held with disabled persons and two with sarakuna themselves to explore their views about the role and position of the sarakuna.

Results: Respondents indicated that the “sarakuna” mainly have a social function and are seen as “father and judge” among their people, especially “when there is a misunderstanding between people... he will try to solve the problem and to change the people without involving others, because he knows the people”. Sarakuna have limited access to government officials, because they are not well educated or don’t know how to approach them. Existing DPOs in a district, however, often work together with sarakuna. In practice, many persons with disabilities have little access to the sarakuna (for example women, those who live far away, or are very poor). Among NGOs, DPOs and government bodies, sarakuna are seen as grassroots leaders. Although having some respect, community members view sarakuna as ‘beggers’ and belonging to the lowest class of society. Disabled persons mention that sarakuna are often old, not well educated and having problems in communicating. They feel they have no influence on decisions by sarakuna.

Conclusion: Sarakuna are important in Hausa culture, but many disabled persons don’t think their role is essential. Disabled women hardly have access to them, whereas disabled men feel they have little influence, as this is confined to a small group around the sarakuna. The activities of sarakuna are limited, and of limited use to their constituencies. Sarakuna hardly seem to cooperate with other stakeholders involved in rehabilitation. Their cooperation with DPOs seems essential if they are to contribute to CBR programmes. Training in advocacy, lobby and leadership would be helpful, including of some of their immediate advisors.

THE ROLE OF TRADITIONAL LEADERS IN THE REHABILITATION OF PERSONS WITH A DISABILITY IN NORTHERN NIGERIA

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"AWAERNESS" AN IMPORTANT IMPLEMENT TO ELIMINATE HIDDEN LEPROSY

N. Manimozhi 1,*, R. R. Lanong 1, J. Manikkathan 1, B. Mahato 1, P. Das 1

INTRODUCTION: A huge work was done before to eliminate leprosy in madhya pradesh india in the form of (modified leprosy elimination campaign) MLEC / SAPEL (special action plan for elimination of leprosy) and many other activities but then also Annual New Case Detection Rate (ANCDR) was not decreasing but it was very constant and the MB and deformity case ratio was increasing continuously, every year the ANCDR was near the last year.

METHODS: Strategy: we were thinking about the constant ratio and suddenly, a surprising fact came in front of us that the most of the new patients were having residence near the MB, RFT and UT patients and from the group where the awareness about the leprosy was still very low. And thus we started a new activity to aware the people about leprosy in RFT&UT patient mainly areas. 

Methodology: Now our DISTRICT NUCLEUS TEAM scheduled our every month calender with new case door-to-door validation and RFT&UT patient’s home visits at the marked majority area of patient of our district and we use to demonstrate the early signs and symptoms of leprosy patient among the crowd and the relief he/she got after the treatment to the peoples.

RESULTS: After these campaigns done by DNT team as a result, people started coming at our centre with query about their skin lesion and we got following surprising ratio 2009-09—MB-73%, deformity G II 11.4% 2012-13—MB 58%, deformity G II 2%

Conclusion: Through this activity we detected hidden cases, we detected high risk cases and were able to control deformity developed in them and now we have surprisingly raised ratio of LEPRESY AFFECTED CONTACT PERSON (LACP) and decreased ratio of MB & Deformity Grade II cases this year.

P-093

CAPACITY BUILDING ACTIVITIES FOR MEDICAL OFFICERS OF HEALTH CENTRES IN LEPROSY REVEALING IMPORTANCE OF SIMPLE, PRACTICAL IEC INTERVENTIONS IN TWO DISTRICTS OF ASSAM - INDIA

N. Manimozhi 1,*, R. R. Lanong 1, J. Manikkathan 1, B. Mahato 1, P. Das 1

Introduction: As a part of Capacity Building activities supporting the National Leprosy Programme in the State of Assam, India at Sibsagar and Dibrugarh high endemic Underserved districts to the Medical Officers and health staff from the prioritised block. The role of motivation and active participation of participants in the programme is vital to ensure effectiveness of training programmes.

Methods: A study was carried out to assess the magnitude of problem due to leprosy in the districts of Sibsagar and Dibrugarh and, just before the start and during the training programme using simple practical IEC interventions. Case Studies, observations methods, along with Informal Semi structured interviews among 11 patients, 44 health staff, along with community members available during the training programme as a group. Along with the District Leprosy Officer there where external experts in leprosy who participated as facilitators in the training programme. Each batch had a programme for two days.

Results: The major findings: The participants showed resistance to touch patients during the training programme, while there was no role model to exhibit good practices. The patients invited to the training programme for practical purposes where found to be sitting in segregation. What was disseminated to the community during the past IEC activities was not understood, while leprosy was identified with deformity and not patches. Patients with patches however did seek medical attention. Most of the cases registered in these health facilities was delayed diagnosis with grade 2 disabilities / MB type.

Case Studies indicated among the patients, severe Psychosocial disturbances, Lack of support from Health facilities, family and the community. While the IEC intervention had shown immediate changes among the participants in proper gathering of Information and planning Leprosy activities including IEC.
ILE-10 were observed in leprosy relapse.

of pro-inflammatory cytokines, especially TNF-γ, neither before nor after anti-CD28/anti-CD49d. Pro- and anti-inflammatory cytokines were measured in stimulated University, USA). Short-term cultures were performed in the presence of costimulatory antibodies M. leprae proliferation in these armadillo-derived lethally irradiated (provided by Dr. Patrick Brennan, Colorado State University, USA). Short-term cultures were performed in the presence of costimulatory antibodies anti-CD28/anti-CD49d. Pro- and anti-inflammatory cytokines were measured in stimulated supernatants by multiplex assay. Multimparametric flow cytometry was performed to determine parameters of innate and adaptive immune response.

Methods: Relapsed lepromatous patients (n=16) were studied. Non-relapsed cured lepromatous individuals (n=10) under follow-up after treatment who showed no sign of relapse were also included in this study. This work also included new and untreated lepromatous (n=6) diagnosed patients just before the beginning of MDT. All patients were diagnosed according to Ridley and Jopling criteria and accompanied at Leprosy Outpatient Unit – FIOCruz. Voluntary healthy individuals (n=6) from endemic leprosy area were studied as control group. Peripheral blood mononuclear cells (PBMC) were stimulated in 24h and 5 day cultures in AIM-V medium with 20μg/mL M. leprae armadillo-derived lethally irradiated (provided by Dr. Patrick Brennan, Colorado State University, USA). Short-term cultures were performed in the presence of costimulatory antibodies anti-CD28/anti-CD49d. Pro- and anti-inflammatory cytokines were measured in stimulated supernatants by multiplex assay. Multimparametric flow cytometry was performed to determine parameters of innate and adaptive immune response.

Results: We observed an expression inhibition of B7.2 (CD86) in both monocytes and dendritic cells (DC) from relapsed patients, either ex vivo or at M. leprae-stimulated cultures. Relapsed patients presented no significant levels of IFN-γ response to M. leprae, neither before nor after treatment. We still noted a significant increase of anti-S100, NGF (neural growth factor), IL-12, TGF and central memory CD4+ and CD8+ T cells (%TMem) after M. leprae stimulation, as well as an augmentation of pro-inflammatory cytokines, especially TNF-α in these patients. In contrast, reduced levels of IL-10 were observed in relapse reemergence.

Conclusion: Our results lead us to conclude that inhibition of B7.2 (CD86) may contribute for an impaired or reduced expression of TNF-α cells responses against M. leprae. In addition, a predominance of TMem, in association with high ratio between TNF-α/IL-10 without IFN-γ production in relapsed patients may be related to the pathogenesis of relapse. Taken together, these findings may be associated with a progressive loss of capacity to inhibit M. leprae proliferation in these patients, thus leading to leprosy reemergence.

Methods: Patients with tuberculosis (TLEP=47) or lepromatous (LLEP=30) or PNL (4), household contacts (HHC=355) and healthy controls (HC=335) were recruited in the study. During the course of MDT, a follow-up at 6th (9 for TLEP and LLEP cases) and 12th month (4 TLEP and 6 LLEP cases) was performed. Written informed consent was obtained from every subject and ethical guidelines were followed while collecting blood samples. Antibig (AG85A and MLLA)-stimulated IFN-γ, IL-10, IL-17 were measured by ELISA. AG85A-stimulated cytokines were analyzed in the patients, since the concentration of cytokines induced by this antigen were either higher or comparable to that of MLESA in the healthy controls (both HHCs and HC).

Results: Significantly high levels of IFN-γ was observed in the TLEP group, compared with LLEP (p<0.027), PNL (p<0.001), MHC (p<0.031) and HC (p<0.040). There were no differences between groups, when IL-10 was compared. Significantly low levels of IL-17 were observed in the TLEP group (p<0.02) compared with LL. IFN-γ significantly declined post-treatment at 6 months (p<0.001) and 12 months (p<0.019) in the TLEP group while a reverse trend was observed in LLEP (though insignificant). Also, IL-10 significantly reduced at 12 months in both TLEP (p<0.035) and LLEP groups (p<0.003). IL-17 concentration increased significantly at 6 months in TLEP (p<0.015) and at 12 months in LLEP groups (p<0.004).

Conclusion: Our observations suggest the potential use of Ag85A as a stimulant in vitro tests with IFN γ and IL-17 as read-outs, immune correlates of protection in leprosy.

Methods: Ten leprosy patients were selected: 5 were paucibacillary (PB) and 5 multibacillary (MB), what were subjected to the biopsy from skin areas with alterations of sensitivity (L) and without alterations of sensitivity (NL), which were stained for HE, Fite-Faraco and to the immunohistochemistry for the antibodies anti-S100, NGF (neural growth factor), IL-12, TGF β1, IFN-γ, IL-10, IL-4, besides the anti-PGL-1. The slides were photographed for capture of 3 images by tested antibody, taken away of the regions of inflammatory infiltrated to the analysis by the program ImageJ, using the plugins: averaging filter, color deconvolution for hematoxyline-DAB by tested antibody, taken away of the regions of inflammatory infiltrated to the analysis by the program ImageJ, using the plugins: averaging filter, color deconvolution for hematoxyline-DAB.

Introduction: The study of the immunological processes and its relation with the alterations of sensitivity are important to understand the mechanisms wrapped in the presentation and in the development of leprosy. The purpose was to analyze the neuroimmuno-histopathological differences of the skin with and without alteration of sensitivity.

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Introduction: The study of the immunological processes and its relation with the alterations of sensitivity are important to understand the mechanisms wrapped in the presentation and in the development of leprosy. The purpose was to analyze the neuroimmuno-histopathological differences of the skin with and without alteration of sensitivity.

Results: The population sample presented average of age of 52.5 years, being 58 years for PB and 48.6 y MB, 8 males and 2 females. Clinically the patients were distributed in PB (2, 3DT) and in MB (2B and 3 DV). The anti-PGL1 level was 2.9 mg/dL, average between the PB and 4.5 mg/dL in the MB. Regarding the protein S100, his expression was bigger in the samples from non-leprosy skin (NL) than in the lesedones ones (L) of the PB (p=0.008). The NGF showed strongly stained in lesedones areas of PB patients as compare to non lesedones areas (p=0.03) and L areas of MB (p=0.001). There was bigger expression of IFN γ in PB L areas than MB L areas (p=0.009).The IL-12 was stronger stained in the L and NL areas of the MB than lesedones areas of the PB (p=0.02). About TGF β1, it was expression in the MB patients than PB, as in L and NL areas with L difference between PB leonedones areas and MB NL areas. The IL-10 cytokine presented more stained in L areas than NL rosy, rnant marker in situ among the paucibacillary patients with wed of the morphological DESARRANJO in of the MB patients (p=0.03). Qualitatively, the anti-PGL-1 antibody was positive in the granulomatous lesedones areas of the MB patients and negative in the PB.
P-456

Presentation Time: Thursday 18/09/2013 at 15:30 – 15:40
Abstract Topic Name: Specialised Centres
Presentation Screen Number: 10
Presenter: Lucrècia Acosta

DIAGNOSIS OF MYCOBACTERIUM LEPRAE IN FONTILLES, SPAIN

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Introduction: Since 1909, the Sanatorium FONTILLES, has dedicated its work towards the diagnosis, treatment (started 1952) and care of leprosy patients. In relation to the diagnosis, the slit-skin smear is traditionally the technique most employed. However, it may be negative in patients with a low bacillary load (limit of sensitivity is ~100 acid fast bacilli) and if the results obtained with this technique are inconclusive molecular biology mainly PCR can be applied. This technique detects the presence of leprosy DNA in the sample and is useful in the monitoring and evaluation of the response to treatment. Fontilles with this technique aims to provide a fast, effective and specific diagnosis of new cases or the follow-up of patients already in treatment.

Methods: The study includes samples obtained from patients attending or received at the laboratory of FONTILLES during 2011 and 2012. They are slit skin smears from earlobes and skin lesions and biopsies (ethanol and paraffin). The techniques employed are staining and microscopic examination, DNA detection (PCR) using RLEPs (gene amplification target for confirmation of diagnosis or follow-up of treatment and evaluation of possible resistance (polA, gyrA and folP genes target) to multidrug therapy.

Results: From April 2011 to December 2012, a total of 208 samples from 45different patients were examined: 72 slit skin samples for staining and 104 slit skin swabs for PCR from 31 leprosy patients attended at the sanatorium for routine clinical examination after completing treatment and 11 slit skin smears and 21 skin biopsies from 14 different individuals for microscopic examination and DNA (PCR) detection were received from different Spanish hospitals to confirm the diagnosis. Three patients were positive by microscopic visualization and 11 by PCR (5 slit skin swabs and 6 skin biopsies). No resistance to dapsone, rifampicin or ofloxacin was detected in a patient not responding to treatment.

Conclusion: Given the low incidence of leprosy (either autolimited or imported) in Spain a comprehensive perception of the disease and control of the detected cases is needed in the Spanish National Health System and so FONTILLES offers the possibility of a rapid, specific and effective diagnosis of leprosy.

P-453

Presentation Time: Thursday 19/09/2013 at 15:40 – 15:50
Abstract Topic Name: Specialised Centres
Presentation Screen Number: 10
Presenter: Dr Mannam Ebenezer

CASE DETECTION METHODS OF LEPROSY IN THE PRE INTEGRATION AND POST INTEGRATION PHASES IN A DEFINED GEOGRAPHICAL AREA IN TAMIL NADU, INDIA

P. Samuel 1, R. S. Bhushanam 2, M. Ebenezer 3
1Non Medical Supervisor, 2Statistician, Schieffelin Institute of Health Research and Leprosy Centre, 3Director & Orthopedic surgeon, Schieffelin Institute of Health Research and Leprosy Centre, Vellore, India

Introduction: The objective of this study was to compare the various case detection methods of leprosy between the pre and the post integration phases. The study looked at the quantum of new cases detected and also the various methods used for case detection.

Methods: Data for this study was obtained from the field practice and research area of Schieffelin Leprosy Research and Training Centre (SLRTC), Karigiri located in Tamilnadu, India. Data was collected from the computerized leprosy data bank for this field area. Every new case was initially screened by paramedical worker and confirmed by a Medical Officer. The data included body charts, smears, diagnosis, classification and complications. The active case detection methods used in the pre integration phase were general surveys, contact surveys, school surveys and ring surveys (focus survey). Services for leprosy were also made available once a month through a village clinic. The data was collected for the pre integration phase between 1986 and 1997 and the post integration phase between 1998 and 2009.

Results: The results showed that there was a significant drop (81.5%) in new cases detected between the pre and post integration phases. This was true of both male and female and rural and urban. The male female ratio also dropped from 1:1.1 to 1:1.32. In the rural areas the percentage of child case detection was 28.1%, in the pre integration phase and 43.8% in the post integration phase. In the urban area the percentage of child case detection was 39.2% in the pre integration period and 23.9% in the post integration period.

In the pre integration phase 42% of new cases were detected by voluntary reporting. General surveys detected 23.8%, contact and other surveys detected 22.9% and school surveys detected 11.3% of new cases. In the post integration phase, 84.1% of new cases were detected by voluntary reporting, with school surveys and other surveys detected 8% each. The pattern for case detection methods between pre and post integration in the rural and urban areas remained similar. There were no major differences in the grades of disability and types of leprosy detected under voluntary reporting between pre and post integration phases. The significant reduction in the number of new cases detected (82.5%) in the post integration phase has to be interpreted carefully. How much of this is due to a true reduction in transmission or due to cessation of active case detection must be explored further. The contribution of voluntary reporting of 42% in the rural and urban areas during the pre integration phase was probably due to creation of a high degree of awareness through Education in the limited geographical area and also the accessibility of services almost at their door step through the village clinics.

Conclusion: The study includes samples obtained from patients attending or received at the laboratory of FONTILLES during 2011 and 2012. They are slit skin smears from earlobes and skin lesions and biopsies (ethanol and paraffin). The techniques employed are staining and microscopic examination, DNA detection (PCR) using RLEPs (gene amplification target for confirmation of diagnosis or follow-up of treatment and evaluation of possible resistance (polA, gyrA and folP genes target) to multidrug therapy.

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P-451

Presentation Time: Thursday 19/09/2013 at 15:00 – 16:00
Abstract Topic Name: Specialised Centres
Presentation Screen Number: 10
Presenter: Mr. Marella Sathiraju

THE REFERRAL CENTERS IMPLICATIONS ON EFFICIENCY AND EFFECTIVE DELIVERY OF QUALITY LEPROSY CARE SERVICES IN POST-INTEGRATION AT DISTRICT LEVEL IN ANDHRA PRADESH

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Introduction: It is a descriptive study describes the situation, problem, phenomenon, services of Leprosy in the 5 districts of AP. Leprosy is a chronic infectious disease, which still strikes fear in the societies as a mutilating, disfiguring, and incurable disease. During 2005 and the subsequent years, leprosy services were made to be delivered from all General Health Care institutions with active support from the erstwhile vertical staff. By March 2004, the strength of erstwhile vertical leprosy staff were reduced to 25% of the original and these staff were kept as support to sustain the leprosy services in the periphery formation of a district nucleus under the District Leprosy Officer. The training status of medical officers and multi-purpose workers in leprosy was low in Andhra Pradesh (6.9 and 22.4%). The involvement of sub-centers, in case referral, recording and dispensing MDT was poor in Andhra Pradesh. 38% clients in Andhra Pradesh did not get MDT in the nearest health facilities or sub-centers.

The leprosy situation as on March 2012 in Andhra Pradesh revealed an increase in grade 1 disability from 1% in 2004 to 4% in 2012. In last two years state data showed the increase in case detection and MB rates. There are 33987 disability cases in the state for care services. On detailed analysis and discussion of current situation in leprosy need to support GHS in providing quality leprosy services by a specialized leprosy referral unit surfaces very strongly.

Methods: It is an observational study conducted within the referral centers established in 5 districts of AP, India. These centers cover rural villages and urban slum areas. The integration of leprosy programme with primary health care has taken place. Quantitative data were collected to know the leprosy related and their sources of referrals. The two years 2010-11 and 2011-12 data of the centers collected from the registers and records maintained at centers. Also collected the state data of the same period and compared the services.

Results: The state new case detection rates are 8.7 and 9.1 per lakh in 2010 -11 and 2011-12 respectively. The MB rate noticed 46% and 48% in the state. Above 90% Re-Constructive Surgery conducted at specialized leprosy hospitals historically managed by ILEP NGOs in the state. It is observed that 12% of cases detected with early nerve impairment by nerve function assessment at Referral Centres, 8% cases treated for complications E.g.: reactions and neuritis, 27% cases found skin smear positive for difficult to diagnose consultation, 39% of cases with plantar ulcer healed and 32% cases in the state received MCR foot wear by Referral Centers.

Conclusion: Increase in proportion of cases with grade 2 deformities, management of reaction, ulcer management and Micro Cellular Rubber footwear are matter of concern and suggests continued need of referral centers for their management and assist the General Health Care system at every district level. The bacteriological positive cases shown the presence of risk of infection in the community and it is positive sign of effective coverage in the post integration scenario. Patients still face problems in getting free leprosy care services.
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