ASSOCIATION OF INCIDENT OCULAR COMPLICATIONS WITH HAND AND FEET DEFORMITIES IN MULTI-BACILLARY LEPROSY PATIENTS
BACKGROUND

- 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%.
- WHO - Target is to reduce the number of new cases of leprosy with G2D per 100 000 total population (G2DR) by at least 35% between the end of 2010 and the end of 2015.
G2D  Grade 2 Deformity

- Prevalence of G2D  in India will be around 490,000 in 2015 and cases detected after 2010 will contribute around 2.5% of that number.
- India is not likely to attain the WHO target unless current control efforts are intensified. Sustaining the WHO target for only 5 years will only minimally reduce the number of people living with G2D in the world by 2015, and the same is true for India and Thailand if they sustain the WHO target until 2035.

Objective

Describe the association of baseline hand and foot deformities with incident ocular complications in multi-bacillary leprosy patients treated with two years of Multi-drug Therapy (MDT).
WHO Deformity Grading of Hands and Feet

- Grade 0  No anaesthesia, no visible deformity or damage
- Grade 1  Anaesthesia present, but no visible deformity or damage
- Grade 2  Visible deformity or damage present
**DEFORMITY**

- No Deformity in any limb: 106 (35.2%)
- Grade 1 or Grade 2 in one or more limbs: 146 (48.5%)
- Grade 1 or Grade 2 in all the limbs: 49 (16.3%)
- Grade 1 deformity in all limbs: 37 (24.3%)
- Grade 2 deformity in all limbs: 9 (3.0%)
During MDT Lagophthalmos

Univariate: HR 9.68 95% CI 1.07 – 87.41

Adjusted: aHR 12.84 95% CI 1.32 - 124.60 p=0.028)
During MDT: Uveal Involvement

G2D in All Limbs vs No G2D in All Limbs

Crude HR 4.6  95% CI 1.1-19.9 p=0.041

Adjusted HR 5.5  95% CI 1.2- 25.7p=0.029
DURING MDT: OCULAR HYPOTONY

Grade 2 deformity vs no deformity
Univariate HR 6.07  95% CI 1.57  23.52 p=0.009
Multivariate Analysis: No significant association.
DURING MDT : CATARACT

Deformity in all limbs
Univariate HR 5.802 95% CI 1.451 - 23.20  p=0.013

Deformity Gr2 in all limbs
Univariate HR 6.021 95% CI 1.38 - 26.35  p=0.017

Multivariate: Not Significant.
DURING MDT: PBLROP

Grade 2 deformity vs no deformity

Univariate HR 4.74  95% CI 1.11 – 20.31  p=0.036
Multivariate HR 3.40  95% CI 0.76 - 15.14  p=0.109
Not Significant
After completion of MDT, among of 225 patients (1631 patient-years) who had visual acuity better than 6/18 at the time of completion of their MDT, 49 (3%/PY, 95% CI 2.27% – 3.97%) developed reduction of visual acuity to 6/18 or worse. Among these, 20 patients (1%/PY, 95% CI 0.6% - 1.5%) became severely visually impaired (less than 6/60 vision in one or both eyes). Grade 2 deformity in all limbs (HR=5.91 95% CI 0.97 – 36.23 p=0.05) was associated with severe visual impairment.
AFTER MDT: LAGOPHTHALMOS

Grade 2 deformity

Univariate Analysis:
HR=10.2  95% CI: 1.1 - 92.5, p = 0.039

Multivariate Analysis: No significant association.
AFTER MDT: CORNEAL OPACITY

Grade 2 deformity

Univariate

HR = 3.54  95% CI 1.21 - 10.36  p=0.021

Multivariate Analysis:

aHR = 1.86  95% CI: 1.15 - 3.00  p=Not recorded
AFTER MDT: UVEAL INVOLVEMENT

Grade 2 deformity

Univariate
HR = 3.08  95% CI 1.54 - 6.16  p = 0.001

Multivariate Analysis
HR = 3.03, 95% CI: 1.08-8.53  p = Not recorded.
AFTER MDT: CATARACT

Univariate Deformity Gr 2 in all limbs
HR 5.18 95% CI 1.24 - 21.58 p=0.024

Multivariate Analysis: No significant association.
AFTER MDT LROP

HR  2.17  95% CI 1.11 - 4.23  p=0.023

aHR  4.39  95% CI 1.21 - 15.90  p=0.024
AFTER MDT  PBLROP

Grade 2 deformity

Univariate  HR 2.96  95% CI 1.46 - 6.01.  p=0.003

Adjusted  HR 3.20  95% CI 0.98-10.42.  p=0.054
AFTER MDT: HYPOTONNY

Grade 2 deformity vs no deformity

Univariate Analysis

HR 5.03  95% CI 1.79 - 14.15  p = 0.002

Multivariate Analysis: No significant association.
AFTER MDT: IRIS ATROPHY

Grade 2 deformity vs no deformity

Univariate Analysis

HR 2.118  95% CI  0.99,4.49) p=0.050

Multivariate Analysis: No significant association.
AFTER MDT LROP/PBLROP

LRP: grade 2 deformity in all limbs

HR 2.17  95% CI 1.11 - 4.23  p=0.023
aHR 4.39  95% CI 1.21 - 15.90  p=0.024

PBLROP: grade 2 deformity

HR 2.96  95% CI 1.46 - 6.01  p=0.003
aHR 3.20  95% CI 0.98-10.42  p=0.054
CONCLUSION

- Leprosy patients with Grade 2 Deformity in hands and feet are more likely to develop potentially blinding leprosy related eye complications during and after MDT than patients with no deformity or lesser degrees of deformity in the hands and feet.
- G2D patients should have a standard of care that includes regular ocular examination.