EFFICACY OF STEROID AND PHYSIOTHERAPY IN EARLY REPORTED LAGOPHTHALMOS

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Introduction

• 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 Chhattisgarh state, a tribal belt in central India with less than 2.0 % of country’s population has about 6 % of new leprosy case-load and approximately, 5.39% grade II deformities.
Introduction

Blindness is a common and disastrous complication of leprosy.

**Facial Nerve Damage**


- Occipitotemporal Branch & Zygomatic Branch
- Selective paralysis of orbicularis occuli leads to lagophthalmos

**Trigeminal nerve Damage** (Absent blink reflex)

**Incidence of Facial Nerve Paralysis**

Hogeweg et al(2001): =2%
J Joshua (2003;Calcutta): =0.1%
Objective

To study the role of early intervention with steroid and adjunct physical therapy in early reported lagophthalmos at tertiary referral institute under Disability Prevention and Medical Rehabilitation (DPMR) Program.
Material and methods

• 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.
Material and methods

• The follow-up visits were made monthly up to six months.
• Progress was recorded in terms of eye hand feet (EHF) score and lid gap (mm).
• Irregular patients were traced in the field by making home visits.
Methods: steroid intervention

• The dosages of prednisolone were as per DPMR guidelines.
• Maximum of 40 mg of prednisolone daily in the morning.
• Tapering of the dosage was done by 5mg daily in successive week.(according to the patient’s response).
• The total duration of steroid therapy was 12 weeks
Methods: physical therapy

- Patients were imparted training for the active and passive physiotherapy.
- Patients were asked to close the eyes tightly, when there was a small lid gap.
- In these cases, patients had to practice forceful closure of the affected eye.
Methods: physiotherapy

1. Forceful closure of both the eyes
2. Manual closure of the upper eye lid

15 Days old lagophthalmos

Eye muscle exercises in front of Mirror
Methods: statistical analysis

• All groups data were expressed as mean and Standard Deviation.

• Statistical significance of differences between initial examination and follow-up after treatment by Student’s two-tailed $t$ test.

• Differences between groups were considered to be statistically significant for $P<.05$. A $P$ value less than 0.05 was considered as statistically significant.
## Results

### Sex distribution

<table>
<thead>
<tr>
<th>Sex of patients</th>
<th>Total new cases attended</th>
<th>Lagophthalmos cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PB (%)</td>
<td>MB (%)</td>
</tr>
<tr>
<td>Male</td>
<td>601 (31.46)</td>
<td>648 (33.92)</td>
</tr>
<tr>
<td>Female</td>
<td>267 (13.97)</td>
<td>394 (20.63)</td>
</tr>
<tr>
<td>Total</td>
<td>868 (45.44)</td>
<td>1042 (54.55)</td>
</tr>
</tbody>
</table>
## Results

### Lid gap (in mm) before and after treatment

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Duration of reported Lagophthalmos</th>
<th>No of eyes*</th>
<th>Initial Lid gap at the time of visit (mean+S.D)</th>
<th>After treatment (mean+S.D)</th>
<th>P value</th>
<th>Level of Recession (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>≤3 month</td>
<td>22</td>
<td>3.40 ±1.65</td>
<td>0.40 ±0.85</td>
<td>P&lt;0.0001</td>
<td>3.00</td>
</tr>
<tr>
<td>2</td>
<td>&gt;3 month</td>
<td>16</td>
<td>5.18 ±2.58</td>
<td>1.56±2.92</td>
<td>P&lt; 0.0001</td>
<td>3.62</td>
</tr>
<tr>
<td>3</td>
<td>Combined</td>
<td>38</td>
<td>4.15 ±2.24</td>
<td>0.89 ±2.05</td>
<td>P&lt;0.0001</td>
<td>3.26</td>
</tr>
</tbody>
</table>
Before and after Steroid Therapy
Discussion

• In the present study the lagophthalmos cases were seen in 3.65% of diagnosed MB leprosy cases.

• Daniel et al. have reported lagophthalmos in 3.43% of the MB patients.*

• Other authors have reported lagophthalmos in 3.3% of newly diagnosed MB leprosy patients.

*Br J Ophthalmologic. 2002 Dec;86 (12):1336-40)
Discussion

- Proportions of Males affected by lagophthalmos were more than females.
- This preponderance could be due to the male life-style that generally exposes them to greater risks of infection.
- Women may tend not to seek early medical help even when it is required.
Discussion

- In the present study, the 27 eyes (71.05%) achieved complete lid closure, while remaining 7 (18.42%) eyes had lid gap of 1 to 2 mm on gentle closure.
- Mpyet C & Hogeweg M have reported complete closure in 75% of the eyes after completion of standardized steroid regimen (Lid surgery in persons affected with leprosy in North Eastern Nigeria: are the needs being met? *Trop Doctor* 36,1,11-3)
- 4 (10.52%) eyes had fail to reduce lid gap after treatment.
- The variation was noted in the closure of the lid gap after steroid therapy in between patients who reported at less than 3 month time and 3 to 6 month time.
Discussion

• Periodic Nerve Function assessment: All susceptible nerve trunks should be assessed for early diagnosis of the nerve damage.

• Regular follow-up:
  for longer duration even after treatment.

• Referral institutes:
  Better utilization of is needed for proper screening of cases.
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 can be done by asking every patient during each visit.

• Adequate management of lagophthalmos will prevent complications like exposure keratitis, corneal ulcer and blindness.
THANKS

Lagophthalmos surgeries in a camp at RLTRI, Raipur, India. (March 2005)