Evolution of disabilities in individuals with leprosy reactions after release from multidrug therapy in Brazil

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• In Brazil:
  – 33,303 new cases were reported in 2012, (17/100,000 pop.); 89% were assessed for disabilities at diagnosis.
  – Of all new cases, 2,234 (7.6%) presented with disability grade 2. Stable in the last 5 years.
  – Only 71% of patients are assessed for disabilities at RFT (2012).
Introduction 2/2

• Large variations in endemicity and programme performance exist in different states in the country.

• Leprosy reactions increase the risk of disabilities also after MDT. Patients with these conditions are not always diagnosed and treated as soon as possible.

• The research describes leprosy reactions after RFT in an high-endemic region of Brazil and identifies factors associated with the development of disabilities.
Study area in North and Northeast Brazil

Cluster 1 - high endemic with a relative risk of 4.59, compared with the national risk to fall ill with leprosy disease.

Five municipalities were included in the study:
- Bacabal and Caxias (Maranhão)
- Marabá (Pará)
- Araguaína (Tocantins)
- Floriano (Piauí)
Methods 1/2

• We included 280 individuals with leprosy reactions after RFT that presented themselves to health facilities in five municipalities 2007-2009.

• Study design: Cross-sectional study.

• Data collection through simplified neurological examination of patients, inspection of patients’ charts and structured interviews.

• Outcome indicator: EHF (Eye-Hand-Foot) score.
Methods 2/2

• We compared the EHF score at diagnosis of leprosy (data in patient records) with the score at the time of the study and identified factors associated with increased disability since diagnosis.

• The degree of sensory impairments of the ulnar, median and posterior tibial nerves was assessed with monofilaments Semmes-Weinstein.

• Voluntary muscle test (VMT) was used to assess the strength of muscles innervated by the ulnar, median, radial, peroneal and the posterior tibial nerves.
• Of the 280 patients included, 190 (67.9%) were males. A total of 232 (83.7%) were classified as MB leprosy. Out of all MB cases 115 (41.1%) were dimorphous (Madrid class.)

• Type 1 reaction was present in 104 patients (37.1%), type 2 reactions in 52 (18.6%), and pure neuritis in 39 cases (13.9%).

• Associated neuritis was found in 51.9% of patients with type 2 reactions.
Results 2/2

• Reactions were not specified in 85 (30.4%) of all 280 cases.

• The number of reaction episodes ranged from one to six, with 215 patients (77.3%) presenting one episode.

• The main nerves affected with thickening and pain – left peroneal nerve: 131 (47.6%), left ulnar nerve: 122 (43.7%) and left posterior tibial: 103 (37.7%).
Occurrence of the first reaction in months after diagnosis of leprosy

- 18.9% after RFT
- 37.9% after MDT
- 43.2% during MDT

Period every 6 months
**Proportion of patients assessed for nerve function by occurrence**

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Assessed</th>
<th>Total nr. of patients</th>
<th>% Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>At diagnosis</td>
<td>198</td>
<td>280</td>
<td>70.7</td>
</tr>
<tr>
<td>At RFT</td>
<td>110</td>
<td>280</td>
<td>39.3</td>
</tr>
<tr>
<td>1 Episode</td>
<td>83</td>
<td>215</td>
<td>38.6</td>
</tr>
<tr>
<td>2 Episode</td>
<td>27</td>
<td>46</td>
<td>58.7</td>
</tr>
<tr>
<td>3 Episode</td>
<td>7</td>
<td>13</td>
<td>53.8</td>
</tr>
<tr>
<td>At time of research</td>
<td>279</td>
<td>280</td>
<td>99.6</td>
</tr>
</tbody>
</table>
EHF scores at diagnosis and at time of study

- Score 0
  - At diagnosis: 70%
  - At time of study: 40%

- Score 1-4
  - At diagnosis: 30%
  - At time of study: 20%

- Score >4
  - At diagnosis: 10%
  - At time of study: 10%
The risk of increased EHF score was associated with:

<table>
<thead>
<tr>
<th>Variable</th>
<th>RR</th>
<th>CI 95%</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiteracy</td>
<td>1.64</td>
<td>1.21-2.21</td>
<td>0.003</td>
</tr>
<tr>
<td>Reactional episode during MDT</td>
<td>1.70</td>
<td>1.13-2.54</td>
<td>0.004</td>
</tr>
<tr>
<td>Dimorphous leprosy</td>
<td>3.71</td>
<td>1.00-13.70</td>
<td>0.009</td>
</tr>
<tr>
<td>Being widow</td>
<td>1.98</td>
<td>1.20-3.96</td>
<td>0.013</td>
</tr>
<tr>
<td>Presence of a thickened nerve</td>
<td>1.78</td>
<td>1.30-3.08</td>
<td>0.024</td>
</tr>
</tbody>
</table>
• Episodes of reactions cause and worsen physical impairments in 88% of patients in the period between diagnosis of leprosy and as assessed during the study.

• The EHF score is an important tool to apply in primary health care settings, to detect the development of physical disability.

• The EHF score should always be assessed at diagnosis, during multidrug therapy and reactional episodes, and after release from treatment.
Conclusions 2/2

• Primary health care services and reference centres need to improve monitoring persons after RFT, even those without disability present at discharge. Priority should be given to those individuals with established disabilities.

• The study suggests the need 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.
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Thank you for your attention!