feet on each point, three score is given to that site for face and foot. Four score is given to that site in hand as four filaments are used for the palmar surface: two for not feeling that filament in face and foot and so forth.

Thus, total loss of sensation at a point will be scored as zero for the face, hand, and feet; i.e., since there are 3 testing points for trigeminal, the maximum sensory loss per this nerve is scored, as $0 + 0 + 0$, which is 0. Normal sensation will be scored as $3 + 3 + 3 = 9$. The maximum score for normal sensation of the following nerves are stated below and these are indicated as denominators in the first Table.

<table>
<thead>
<tr>
<th>Nerves</th>
<th>Maximum score per intact nerve</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. Trigeminal</td>
<td>9</td>
</tr>
<tr>
<td>L. Trigeminal</td>
<td>9</td>
</tr>
<tr>
<td>R. Great auricular</td>
<td>6</td>
</tr>
<tr>
<td>L. Great auricular</td>
<td>6</td>
</tr>
<tr>
<td>R. Ulnar</td>
<td>16</td>
</tr>
<tr>
<td>L. Ulnar</td>
<td>16</td>
</tr>
<tr>
<td>R. Median</td>
<td>24</td>
</tr>
<tr>
<td>L. Median</td>
<td>24</td>
</tr>
<tr>
<td>R. Posterior tibial</td>
<td>30</td>
</tr>
<tr>
<td>L. Posterior tibial</td>
<td>30</td>
</tr>
</tbody>
</table>

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Serologic Recognition of Low Molecular Weight Mycobacterial Protein Fractions in Lepromatous Patients with Type II Reactions (ENL)

TO THE EDITOR

Hansen’s disease is a mycobacterial infection that produces physical disabilities. The progression of the disease is slow and indolent but in some cases there are changes in the immunological status with the development of acute episodes represented by reactional states. Many of these reactional episodes occur after treatment has been finalized and, therefore, it is important to clarify whether they constitute relapses. We wished to determine if specific patterns of serologic recognition of mycobacterial proteins were associated with Type 2 reactional states in lepromatous patients. Serum samples were taken from 12 adult patients, mean age of 43 ± 16 yrs, with a predominance of males (80% M and 20% F), who were undergoing a Type 2 reactional episode (erythema, nodosum leprosum, ENL). These sera were divided in two groups of six sera each: sera...
tion of low molecular weight MLSA proteins (less than 30 kDa) in patients in group I which was not observed in Group II.

In preliminary studies we previously reported a clear difference between the IgG antibody levels directed towards soluble mycobacterial proteins (Mycobacterium bovis MbSA and Mycobacterium leprae MLSA) in an ENL active group (n = 4) as compared with the non-active group (n = 4) (4). In the ENL active patients we found IgG antibody levels towards MbSA and MLSA of 0.535 ± 0.24 and 0.731 ± 0.32, respectively, as compared with the non-active patients, whose values towards the same total proteins were zero. In this study using the electroelution technique we were able to demonstrate the immunodominant antigens found in patients in an ENL reactional state.

Many authors have shown a decrease of IgM antibodies directed towards phenolic glycolipid (PGL-I), which is an M. leprae structural component (1) in these reactional patients. To examine this, we separated the reactional patients in two groups, according to their PGL-I positivity. IgM antibodies against native PGL-I were measured in an enzyme linked immunosorbent assay using the method described previously (6).

In addition to the immunodominant recognition towards proteins with a 30 kDa relative mobility, both with MbSA and MLSA, we also saw that the recognition in Group I involves a larger number of protein fractions, including low molecular weight proteins (<30 kDa), compared to the patients in Group II.

We have recently increased the number of multibacillary patients (n = 70), and there have been no significant differences in the Mycobacterium leprae 30 kDa protein antibodies between patients who had Type II reactions and those who did not. In this larger group of 70 multibacillary patients, nine presented ENL reactions and the other 61 did not. Of the nine with ENL, eight (89%) gave positive reactions to the 30 kDa protein, average optical density 0.8816. Of the 61 remaining patients, 42 (69%) gave positive reactions to the 30 kDa protein, average OD 0.5885. This difference was not statistically significant, p = 0.42, but the observation suggests a trend toward stronger reactivity in patients with ENL. The sera of newly diagnosed multibacillary patients reacted with other peptides of both higher and lower molecular weights. In this population of 70 patients, 62.6% were in treatment and presented bacillary indices of less than 2+. Reactivity was strongly associated with bacillary load. Reactivity to the 10 kDa protein of M. leprae was lower in treated patients than in new cases (unpublished data).

In conclusion, both patients who had ENL as well as those who did not responded to the 30 kDa peptide of M. leprae, but the reactions tended to be stronger in the former group. Additional more detailed studies will be necessary to detect a clear marker for ENL, using individual proteins of the 85B complex or specific peptide sequences of other proteins that might discriminate between patients with or without reactional phenomena.

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