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Serologic Response to Mycobacterial Proteins in Hansen's Patients During Multidrug Treatment[1]

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Serologic studies have been widely done in leprosy using the bacterial cell wall component phenolic glycolipid (PGL-I) for purposes of diagnosis, classification in the disease spectrum, chemotherapy monitoring, detection of subclinical infection, prognosis and response to vaccines ([1, 4, 10, 16, 23]). The role which might be played by other structural components, individual *Mycobacterium leprae* proteins among them, could be very interesting for follow up of the behavior of antibodies directed to those proteins, both in serologic reactions and in cell-mediated immunity.

In previous studies we have reported on a group of 150 patients followed over 5–10 years through repeated determinations of anti-*M. leprae* PGL-I IgM antibody levels and studies of the lymphoproliferative responses toward various *M. leprae* antigens (whole bacilli, complete protein extract). Multidrug therapy (MDT) plus immunotherapy (IT) or MDT alone resulted in a statistically significant decrease in antibody levels in the multibacillary (MB) group at the end of 2 years of treatment, and those values continued decreasing in later evaluations ([15, 16]).

With the introduction of molecular biology technology and with monoclonal antibodies, it has been possible to obtain individual proteins from mycobacterial antigens ([2, 3, 8, 11, 20, 23]). A good knowledge of the humoral response of the host directed to specific *M. leprae* mycobacterial antigens, especially heat shock proteins, could be useful in vaccine preparation and epidemiological studies ([5]).

In the present study, we monitored IgG antibodies directed to mycobacterial proteins from *M. tuberculosis* (Mt 70), *M. bovis* (Mb 65), *M. leprae* (Ml 36, Ml 28, Ml 18, Ml 10) and the complete protein *M. leprae* antigen (MlSA) before starting MDT (year 0) and during and after completing treatment (years 2–3). The recombinant antigens used in these assays were obtained from the Recombinant Protein Bank of the World Health Organization.

MATERIALS AND METHODS

Patients. Patients were examined at the Clinical Section of the institute of Biomedicine, Caracas, Venezuela. The form of the disease in each patient was classified according to clinical, histopathological and bacteriological criteria as defined in the Ridley-Jopling scale ([18]). Originally, a sample of 15 multibacillary (MB) patients and 17 paucibacillary (PB) patients were evaluated. The follow-up process included 12 MB patients and 12 PB patients who were sampled before, during and after MDT. Only the data from the groups of 12 with all samples are reported in the results. All MB patients (80% men and 20% women) and PB patients (30% men and 70% women) were adults.

Six Mitsuda-positive and 10 Mitsuda-negative contacts were also evaluated. The positive contacts were personnel of the Institute of Biomedicine in frequent contact with patients over a period of 10 years or more. Negative contacts were household contacts of both MB and PB patients.

Antigens. The antigens used for this study were: soluble *M. leprae* extract MLSA obtained by rupturing bacilli with a

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