Immunoblot Analysis as a Diagnostic Tool for Detection of Visceral Leishmaniasis in Bangladesh

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Objective: Develop a specific diagnostic test for visceral leishmaniasis in Bangladesh.

Methodology: Sera of 32 confirmed visceral leishmaniasis (VL) patients, obtained from different hospitals in Bangladesh during November 1996-April 1997, were studied by the immunoblot technique with antigen prepared from *Leishmania donovani*. Controls included sera of 34 healthy individuals from both endemic and non-endemic regions, 25 patients with non-leishmanial infections, and one individual treated for visceral leishmaniasis. Direct agglutination test (DAT) was performed on all sera.

Results: Sera of the VL patients showed heterogeneity of polypeptide recognition and identified many polypeptides with relative molecular mass ranging from 16 to >106 kD. The 56-64-kD band was recognized by all sera, while the 106, 78, 76 and 66-kD polypeptide bands were identified by 91%, 91%, 97%, and 97% of the sera from the VL patients respectively. Three of these polypeptides and the 56-64 kD polypeptide were recognized by 97% of the sera from the VL patients. The 76-kD polypeptide band was not recognized by sera of only two patients, of whom one had been treated for VL. The recognition of the 56-64-kD band had a sensitivity and specificity of 100% and 90% respectively and that of the 76-kD band has a sensitivity and specificity of 97% and 98%. For both VL patients and the treated individual, DAT was positive at high titre (1:102400). The sera of patients with non-leishmanial infection identified one or two of the five specific polypeptides, but in no case more than two.

Conclusion: Immunoblot analysis can be a valuable tool in specific diagnosis of active visceral leishmaniasis in Bangladesh. The recognition of the 56-64-kD band, in addition to any three bands, may be considered diagnostic of VL. Additionally, further studies can confirm if this technique can differentiate active infection from treated infections unlike DAT, which is currently used in Bangladesh.

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