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Evaluation of Serological Tests for the Diagnosis of Visceral Leishmaniasis

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Abstract: Aim: Visceral leishmaniasis (VL) is a zoonosis that affects both animals and man. VL is seen sporadically in the Aegean, Mediterranean, Black Sea and central Anatolian regions of Turkey. The aim of this study was to evaluate serological tests for the diagnosis of VL. Materials and Methods: The performance of two agglutination tests based on freeze-dried whole promastigote Leishmania antigen, i.e. Fast Agglutination Screening Test (FAST) and Direct Agglutination Test (DAT), an Indirect Immunofluorescent Antibody Test (IFAT), and an Enzyme-Linked Immunosorbent Assay (ELISA) using soluble antigen were compared to parasitological diagnosis in the serum specimens of 59 patients with the clinical suspicion of VL presenting at a tertiary care center in Ankara. Results: Twenty-four patients had a parasitologically proven VL infection and 35 VL suspects had a negative parasitological work-up. DAT and IFAT were positive in all parasitologically positive patients whereas FAST and ELISA were positive in 23 (95.8%) out of 24 of the cases. Out of 35 clinically suspected but parasitologically negative VL cases, four showed a positive reaction in DAT, five in FAST and IFA and six in ELISA. The agreement between the tests was excellent (agreement: 90-96.6%; k value: 0.82-0.93). Conclusions: The present study shows that the FAST is a rapid and cost-effective screening test. DAT, IFAT and ELISA tests are all very sensitive tests, but on grounds of simplicity and low cost, the DAT is considered the most suitable test for the sero-diagnosis of VL in our region.

Key Words: Parasitic diseases, protozoon infections, leishmaniasis, visceral, kala azar, Leishmania donovani, L. donovani promastigote antigen, serology, visceral leishmaniasis, diagnosis, serology, agglutination, IFA, ELISA

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