Comparative Study between Sandwich ELISA, Dot-ELISA and Immunomagnetic-Beads-ELISA Techniques in Diagnosis of Schistosomiasis haematobium.

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Abstract:

The present study was conducted to evaluate the role of prepared S. haematobium cysteine protease (CP) antigen in the detection of the infection through raising anti-S. haematobium pAb using traditional sandwich ELISA and sandwich dot-ELISA in relation to nanodiagnostic assays. This study was conducted on 120 individuals. By parasitological examination, they were divided into 3 groups, 60 individuals were positive for S. haematobium (group A), 60 individuals were positive for other intestinal parasites ova and were negative for S. haematobium ova in urine (group B) and 60 control individuals with negative urine and stool examination for Schistosoma ova or other intestinal parasites (group C). Novel immunomagnetic bead based ELISA used for detection of CP antigen in sera of and urine infected with S. haematobium. The sensitivity of the traditional sandwich ELISA was 85% in serum and 83.3% in urine and it increased by using the sandwich IMB-ELISA to be 95% in serum and 91.7% in urine. The specificity of sandwich ELISA was 88.3% in serum and 85% in urine and it increased by using the sandwich IMB-ELISA to be 93.3% in serum and 91.7% in urine. The sensitivity of the traditional sandwich dot-ELISA was 91.6% in serum and 88.3% in urine and it increased by using the sandwich IMB-dot-ELISA to be 96.6% in serum and 93.3% in urine. The specificity of sandwich dot-ELISA was 90% in serum and 91.7% in urine and it increased by using the sandwich IMB-dot-ELISA to be 93.3% in serum and 96.7% in urine. In conclusion, the IMB-dot-ELISA assay was highly sensitive and specific and of a technical value as an applicable, fast, cheap, accurate and promising diagnostic technique for schistosomiasis in the field of endemic regions.

Key words: Cysteine protease (CP) antigen; Schistosomiasis; Schistosoma haematobium (S. haematobium); Immunomagnetic bead ELISA technique (IMB-ELISA).

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