Research No.(3): Multiple Authors

Efficacy of copro-antigen immunoassays in diagnosing of cryptosporidiosis among Diarrheic Patients.

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Egypt. J. M. Sci. 31 (2) December 2010: 1089-1102.

Abstract

Cryptosporidium parvum is an opportunistic parasite capable of causing diarrhea that is self-limiting in immunocompetent individuals and life-threatening in immunocompromised patients.

The present study was designed to compare the sensitivity and practicability of copro-antigen assays; RidaQuick *Cryptosporidium* strip test and enzyme linked immuno-sorbent assay (ELISA) with Kinyoun acid fast stain in diagnosing of cryptosporidiosis among diarrheic patients. Stool samples were collected from 108 diarrheic patients and also from 36 control subjects without diarrhea; a part was stained by Kinyoun acid fast stain and the other part was stored at-20°C for RidaQuick *Cryptosporidium* strip test and copro-antigen ELISA.

The results revealed a significant association between *Cryptosporidium* infection and diarrhea ($P< 0.05$) as *Cryptosporidium* was detected in 18 (16.7%) of diarrheic patients while none of the control subjects was found to be infected with *Cryptosporidium* by any of the techniques. Also, the frequency of cryptosporidiosis in immunocompromised patients (14.8%)

was significantly higher than in immunocomptent patients with diarrhea (1.9%)(P< 0.05). detection rate of *Cryptosporidium* infection was 10.2% by Kinyoun acid fast stain, 13.9% by RidaQuick *Cryptosporidium* strip test and 15.7% by ELISA. Based on true positive samples (18) that were positive by at least any two techniques, sensitivity of Kinyoun acid fast stain, RidaQuick *Cryptosporidium* strip test and copro-ELISA was 61.1% (11/18), 83.3% (15/18) and 94.4% (17/18) respectively. Based on the result of Kinyoun acid fast stain, the sensitivity, specificity and diagnostic accuracy of ELISA were 90.9%, 92.8%, 92.6% while those of RidaQuick were 72.7%, 92.8%, 90.7% respectively. Compared to the result of ELISA, RidaQuick *Cryptosporidium* assay gave 82.3% sensitivity, 98.9% specificity and 96.2% diagnostic accuracy.

In conclusion, the findings showed that the copro-antigen immunoassays are more sensitive compared to staining technique and should be considered as the choice methods for the diagnosis of cryptosporidiosis in patients who have had diarrhea for a long-period of time.