Dot Elisa for Antibody Detection in Giardiasis

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Rakhshanda Baqai (PMRC Research Centre, Jinnah Postgraduate Medical Centre, Karachi.)
Shahana U. Kazmi (IIDRL Department of Microbiology, University of Karachi, Karachi.)
Sarwar J. Zuberi (PMRC Research Centre, Jinnah Postgraduatc Medical Centre, Karachi.)

Introduction

Giardia lamblia is a frequent pathogen in persistent diarrhoea[1]. Both humoral and cellular immune responses are important in clearing the parasite and providing immunity[2]. A rapid sensitive and specific serological test like dot ELISA could be useful for early detection of Giardia specific serum antibodies for routine diagnosis. This study reports the use of dot ELISA for the detection of Giardia lamblia antibodies in patients with giardiasis.

Patients, Methods and Results

One hundred patients between the ages of 15-65 years (males 64, females 36) were studied. Diagnosis was based on detection of Giardialamblia on routine stool examination and Giardia lamblia antigen detection by immunofluorescence using Giaitha CEL immunofluorescence test [Cellabs Diagnostics Pty. Ltd., Australia) and ELISA test using Melotest Giardiasis Ag kit (S.A)1. Twenty-eight apparently healthy controls (males 16, females 12) with no histoiy of diarrhoea were also included in the study. Protein estimation of Giardia lamblia antigen was done by Biuret method and antigen concentration was adjusted to 10 ug/ml. Dot ELISA was done according to the standard method3. The principle of the assay is as follows: A dilute solution of antigen with a concentration of 10 ug/ml was dotted on to a intro cellulose filter and the dot then incubated first with the test antibody and secondly with a peroxidase conjugated second antibody directed against the first antibody. After the development of the peroxidase and with the help of a color developer the positive reaction is detected as pink coloured dots against a white background. The results of Giardia specific immunoglobulins are shown in the table.

Table. Giardia specific serum immunoglobulins by dot ELISA.

Immunoglobulins	Patients (100)	Controls (28)
	No (%)	No (%)
IgE	26 (26)	8 (28.5)
IgM	25 (25)	-
IgG	16 (16)	2 (7.1)
IgA	8 (8)	5 (17.8)

Difference in Giardia specific immunoglobulins between the patient and control group was not significant.

Serum IgE was detected in 26 (26%) patients and 8(28.5%) controls and IgM in 25(25%) patients only indicating active infection. IgG was detected in 16(16%) patients and 2 (7.1%) controls. IgA was found

in 8 (8%) of patients and 5(17.8%) controls, but the difference in immunoglobulins between patients and controls was not significant.

Comments

Giardia specific serum immunoglobulins IgM and IgG play a role in giardia lamblia infection. Serum 1gM antibody is present in active infection[2,4]. The presence of IgG indicates that the infection has been present for sometimes[5], but it was unable to distinguish current from previoUs infection[6]. Lower number of patients positive for IgA indicates that the protective role of IgA against mucosal damage is decreased in giardiasis. Detection of antibody by dot ELISA proves the simplicity and cost effectiveness of this method. Dot ELISA is a convenient and economical test and can be used when large number of samples are to be tested obviating the need of 96 well microtitre elate and the amount of antigen used in routine ELISA method[8] . Hence, dot ELISA can be used routinely for the detection of antibody in patients with Giardiasis.

References

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