

Serum IgE levels in giardiasis

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Summary

Raised levels of serum immunoglobulin E are found in many parasitic diseases. In order to determine the influence of *Giardia lamblia* on IgE levels of clinically symptomatic patients, a controlled study was performed. There was no difference between the serum IgE values from Brazilian patients with giardiasis and those from normal Brazilian controls, although in both groups there were many individuals with values higher than the normal range reported from the northern hemisphere.

Introduction

There is experimental evidence that parasites, especially helminths, may non-specifically potentiate IgE antibody responses (Jarrett & Kerr, 1973). IgE levels are elevated in individuals infested with *Ascaris lumbricoides*, *Toxocara canis*, *Ancylostoma* spp., *Trichinella spiralis*, *Capillaria philippinensis*, *Schistosoma* spp., *Echinococcus* spp., *Trichocephalus trichuris*, *Oxyuris vermicularis*, *Strongyloides stercoralis* and *Filaria* spp. (Jarrett & Kerr, 1973; Ishizaka & Dayton, 1972; Spitz, 1972; Rosenberg, 1970, 1971). To our knowledge the influence of *Giardia lamblia* on circulating IgE levels has not been previously investigated in a controlled manner.

Materials and methods

Subject selection

Sera from fourteen patients with clinically symptomatic giardiasis and fourteen normal controls were obtained. All subjects in the test group had cysts and or trophozoites of *Giardia lamblia* in stools, and no other associated parasites. They had no personal or family history of asthma, atopic dermatitis, rhinitis or allergies. No other diseases or malnutrition were present. Each patient was carefully matched individually

with a normal control for age (± 3 years), sex, race, ethnic group and socio-economic status. Normal controls were defined as healthy individuals with no personal or family history for asthma, atopic dermatitis, rhinitis or allergies, and negative stool examinations for ova and parasites. There were five males, nine females, four black and ten Caucasian subjects in each group. The average age was 41.6 years (range 12 to 63 years) in the *G. lamblia* group and 42.6 years (range 15 to 65 years) in the control group.

IgE determination

Serum IgE levels were measured by the Phadebas Kit method (Pharmacia Diagnostic AB, Uppsala, Sweden).

Results

The serum IgE levels in the test group (mean 1217 iu/ml) were not different from those of the control group (mean 1433 iu/ml). Statistical analysis using the Mann-Whitney U test showed that $U = 110$ and $z = 0.56$. The means of both groups were higher than the normal serum IgE range used in our laboratory (33–915 iu/ml). 43% of individuals in both groups had an IgE value greater than 915 iu/ml (Fig. 1).

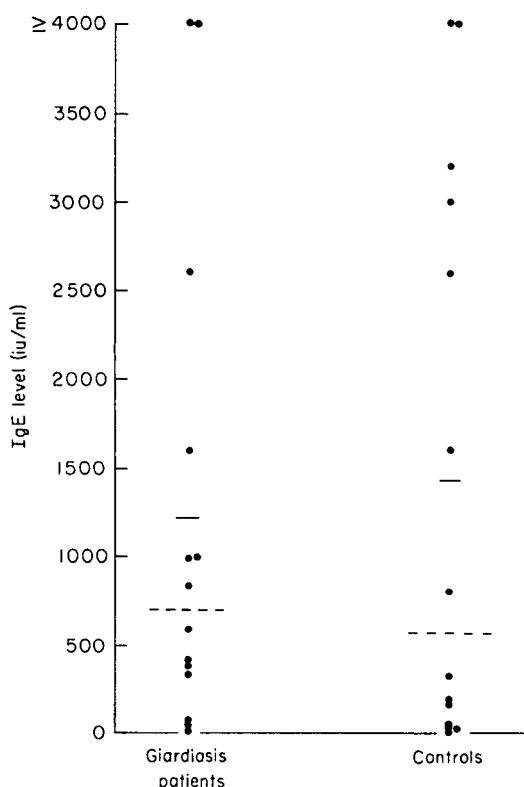


Fig. 1. Distribution of serum IgE levels in patients with giardiasis and in normal controls. (—) Mean; (---) median.

Discussion

Giardiasis is reported to be associated with reduced intestinal secretory IgA (Zimmerman & Kaplan, 1972) and with low IgE levels in patients with concomitant hypogammaglobulinaemia (Brown *et al.*, 1972). Our data showed no difference between the serum IgE levels of patients with giardiasis and the levels of normal controls from a geographic area where parasitic infestation is endemic (State of Rio de Janeiro, Brazil). Of interest was the fact that Brazilian normal controls had higher serum IgE values than those reported in the North American and European subjects. Environmental factors and the ethnic origin of the population studied seem to affect IgE values. Johansson, Mellbin & Vahlquist (1968) had previously reported higher serum IgE levels in normal Ethiopian children compared to Swedish children. Previous exposure to parasites may be an alternative explanation for the hyperglobulinaemia E found in tropical areas.

It is possible that protozoan infections do not increase serum IgE levels since elevated IgE has not been reported in malaria, trypanosomiasis or infections with *Entamoeba histolytica* alone.

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