



Immunological study in patients with chronic giardiasis

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Abstract

Conducted this study to determine effect *Giardia lamblia* infection from measurement levels of immunoglobulin A, G, M and E among males in Al-Najaf governate, where use 66 patients and 30 healthy as control groups which visited Al-Hakeem Hospital and Al-Sadder medical city in Al-Najaf governate during the period from January till August 2015. Infection with this parasite diagnosis by using the wet amount microscope for stool from patients. The results showed significant decrease ($P < 0.05$) in immunoglobulin A, G, and M in *G.lamblia* infection patients in compared to healthy group , While the results showed immunoglobulin E was normal in *G.lamblia* infection patients in compared to healthy group.

Key word: giardiasis , immunoglobulin , Radial Immuno Diffusion Plate.

Introduction

Giardia lamblia is best known as the organism responsible for “Beaver Fever” or “Backpacker’s Diarrhea” because of its proliferation in streams and rivers, *G. lamblia* can completely destroy the surface of the mucosal barrier and subversion in small intestine barrier causes inflammation, reduction of surface area for nutrient absorption, lactose, sucrose intolerances and inability to digested fats and oils (Kihe E *et al.*,2003).

It can also result in the formation of profound pockets in mucus plugs form and creating an environment that harbors and protects infectious organisms. Other effected with giardiasis infection is hypermotility (or colonic dumping), in which food moves through the small intestine were quickly and non completely digested. The undigested food dumps directly into the large bowel which created protein decay and fertile environment in which yeast, fungus, and other unwanted microorganisms proliferate (Wright,2012).

Giardia infected may caused chronic or acute lead to occurred diarrhea in humans, sometimes with severe disease and malabsorbtion also pass unnoticed by host as an asymptomatic infection (DeVriese *et al.*,2007).

The variability of clinical illness appeared to due to differences both in parasite and host’s immune response (Aggarwal&Nash1987) and the most frequently reported intestinal parasite worldwide (WHO,2005).

It can cause acute or chronic diarrhea participate to nutritional scarcity or remain asymptomatic (Ali&Hill,2003). Giardiasis is disease occurred action an intestinal infection caused by microscopic parasite that's found worldwide, especially in areas with poor cleaning and critical water. Giardia infection is noted by abdominal cramps, bloating, nausea and bouts of watery diarrhea. Giardia infection were express within few weeks but you may have intestinal problems long after the parasites are gone, it may present with severe injury of the small intestine with effects on nutrient absorption (Carvalho-Costa *et al*,2007).



Many drugs are mostly effective against giardia parasite but not everyone responds to them, prevention is your best defense (John,2007).

The immune system is biological structures and [processes](#) within an [organism](#) that protects against [disease](#). functionally proper an immune system must detected a wide variety of agents, from [viruses](#) to [parasitic worms](#) and distinguish from organism's have healthy [tissue](#). In several species immune system can be classified into subsystems, such as innate immune system contra adaptive immune system or humoral immunity versuse cell-mediated immunity.

Material and method

Specimens

From January till August, 2014, 66 samples were collected from patients and 30 healthy male which comes to clinics in AL-Hakeem Hospital and AL-Sadder Teaching Hospital in AL-Najaf governate, Stool samples collected were clean, broad mouth specimen in bottles beak to male patients and blood samples were also drawn from same patients through vein-puncture into specimen tubes and remain for 30 minutes at room temperature , these samples put for 5 minutes in centrifugation at 3000 rpm (Backman/counter, Germany) to separate the serum and collected in other sterile tubes.

Detection of Immunoglobulin IgA, IgM, IgG and IgE by Used Single Radial Immuno Diffusion Plate. By binding site kit (U.K):

- 1- Open the plate, if moisture is present, allow evaporating.
- 2- Apply 5 μ l of human serum sample (patient & control) .
- 3- Close the lid firmly. Incubate the plate at room temperature if possible inverted.
- 4- Measure the diameter accurately to within 0.1 mm with a suitable device.
- 5- Evaluate result using the table of reference or standard curve Procedure by (Mancini *et al.*,1965).

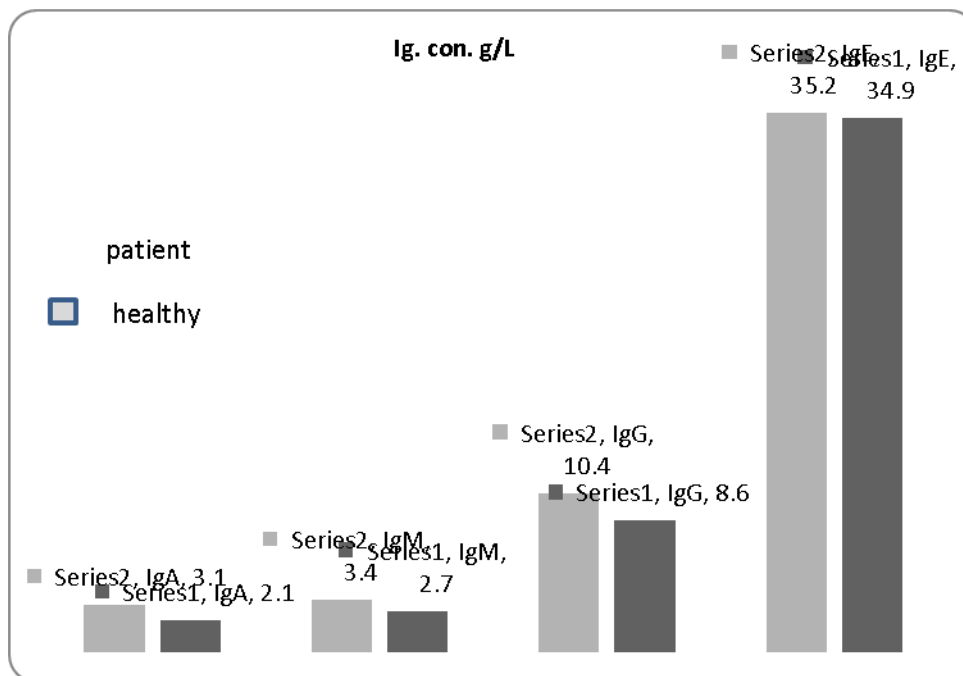
Statistical analysis

Analyzed used are packages Graphpad prism for Windows (5.04, Graphpad software Inc. USA), Data are offered as Mean \pm Standard Error. In comparison between patients and healthy groups were analyzed by T-test, p-value < 0.05 was considered significant.

Results

Relation between Immunoglobulin of Giardiasis patients and healthy group.

The result of figure (1) showed comparison between giardiasis patients and healthy group where as significant decrease ($P < 0.05$) of serum immunoglobulin A ,G, and M concentration in giardiasis patients 2.145 ± 0.592 g/L , 8.605 ± 0.451 g/L , 2.7 ± 0.210 g/L respectively in compared to healthy group 3.102 ± 1.120 g/L, 10.4 ± 0.745 g/L, 3.4 ± 0.983 g/L respectively while the concentration of IgE remain normal 34.9 ± 0.481 g/L in giardiasis patients in compared to healthy group 35.2 ± 0.513 g/L .



*Significant difference between control group and patients ($P < 0.05$)

Discussion

The result has revealed that the serum levels of immunoglobulin A, G and M in males infected with *Giardia lamblia* was significantly decreasing in *G. lamblia* infection patients in compared to healthy group, While serum immunoglobulin E remain normal in *G. lamblia* infection patients in compared to healthy group. The decrease in immunoglobulin A, G and M level in patients with *G. lamblia* may be due to the Phagocytosis plays an important role in *G. lamblia* pathogenicity, making it an object of investigations.

In the present study, decreased levels of immunoglobulins were found in chronic cases while other reports indicate increased total serum immunoglobulins in patients with persistent diarrhoea and giardiasis (Char *et al.*, 1993). Hypogammaglobulinemia and giardiasis may occur together but difference from normal levels of any immunoglobulin not appear to explain either existence of giardiasis or variability of its clinical features. Individuals with decrease immunoglobulin levels are not in greatest risk of acquiring giardiasis than those with higher immunoglobulin concentrations (Bowers and William, 2006), but the immunodeficient individuals once infected are much more likely to have an infection that results in symptoms (Liu *et al.*, 2004).

It appears that serum immunoglobulins (IgM, IgG, IgA) have some relationship especially with giardiasis in chronic cases and decrease in immunoglobulins may contribute to *G. lamblia* infection. (Gottstein *et al.*, 2009).



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