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The Relation between Entamoeba Histolytica and Iron Statement in Children

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ABSTRACT

The aim of the present study was to detect the relation between E. histolytica and iron statement in children. In the present study used 35 children, between the ages of 8 months to 4 years with bloody diarrhea, who were admitted to the General Children Hospital / Kirkuk during the period between 1st of July 2019 to 30th of October 2019. Other 25 children were taken as a control group. Information regarding age, sex and residence were taken from their parents and healthy children. The results of current study show significant (P<0.05) reduce in iron, ferritin and hepcidin concentration in patients group (26.03±1.18; 9.03±0.6; 264.7±6.32 respectively) compare with control group (50.97±2.32; 19.06±1.68; 310.0±20.1 respectively). It was concluded that there is positive relationship between serum iron statement and E. histolytica infection in children.

Keywords: E. Histolytica, Serum Iron, Serum Ferritin, Serum Hepcidin.

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INTRODUCTION

Entamoeba histolytica is belongs to genus Entamoeba which is the caused diasease known as amoebiasis [1]. Entamoeba including various types or species among them six live in intestinal tract of human including E. histolytica, E. moshkovskii, E. dispar, E. coli, E. hartmanni and E. poleki [2]. Universily, diarrheal is the third reason lead to death in children (under 5 years) with colitis that caused by Entamoeba which main reason of severe diarrhea in nations with low-income [3]. Symptoms of colitis that caused by Entamoeba is an uncommon but complication of life threatening, more than 50 percentage of children with severe colitis are die [4]. Clinical features of amoebiasis diasease may contain distress in abdominal regoin, general weakness of body, sickness of children, episodes of severe diarrhea that called dysentery contain blood and mucus [5-6]. approximatilly 90% of entameba infections do not feature any symptoms while the other 10% demonstrates a several of medical conditions like intestine inflammation, exist blood and mucus with feces and abscess of liver [7-8]. To prognosis of extra intestinal amebiasis disease, diagnosis of amebiasis by using microscopy device is often un-useful [9]. the treatment of amebiasis done by using nitroimidazole drugs and often need many interventions for a therapy. Although there is no appropriate vaccine against Entamoeba histolytica, vaccination against Entamoeba histolytica adhesion protein, the Gal/GalNAc lectin, has proved promising in animals [10-11].

MATERIALS & METHODS

Subjects

The present study was done on 35 children, between the ages of 8 months to 4 years with bloody diarrhea, who were admitted to the General Children Hospital / Kirkuk during the period between 1st of July 2019 to 30th of October 2019. Other 25 children were taken as a control group. Information regarding age, sex and residence, complaint: diarrhea (frequency, presence of blood and mucus), vomiting, fever, tenesmus, rectal prolapse and convulsion, types of feeding: breast, bottle, mixed and solid food, water supply, history of boiling the drinking water, all were taken from their parents and healthy children. Fresh stool samples were collected from patients and sent to the laboratory for general stool examination to detect cysts of E. histolytica.

Study Deign

60 subjects (children) were used in current study and distributed into two groups as following:

- Control group: children (25) with good health and without any disease.
- Infected group: children (35) with bloody diarrhea.

Blood Collection

Samples of blood were taken from children and all samples were put into test tubes until its clotting. Serum were collecting after blood samples were centrifuged at 5000 rmp for 10min. and stored until assayed for laboratory tests.

Measurements

Serum iron, ferritin and hepicidin levels were obtained through automated quantitative test by using vidas machine, using vidas biomerieux France.

Statistical Analysis

Statistical analysis of data (Serum iron, ferritin and hepicidin levels) was done using mean, SD, percentages and ANOVA test.

RESULTS

Serum iron Concentration

The results of present study show significant (P<0.05) decrease in serum iron concentration in patients group (26.03±1.18) compare with control group (50.97±2.32) as shown in figure (1).

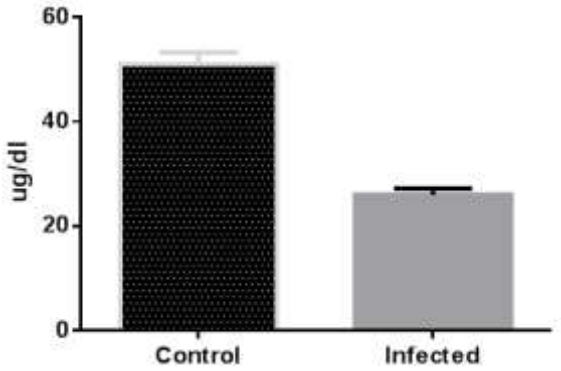

Figure 1: Serum iron Concentration in both groups

Serum Ferritin Concentration

The results of present study show significant (P<0.05) decrease in serum ferritin concentration in patients group (9.03±0.6) compare with control group (19.06±1.68) as shown in figure (2).

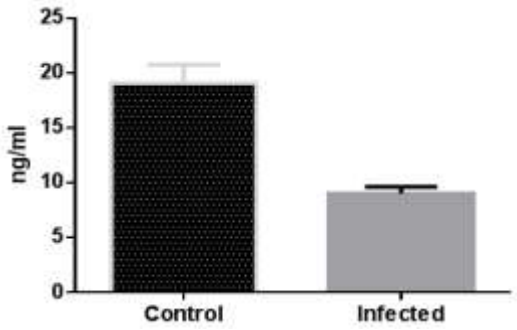

Figure 2: Serum Ferritin Concentration in both groups

Serum Hepcidin Concentration

The results of present study show significant (P<0.05) decrease in serum hepcidin concentration in patients group (264.7±6.32) compare with control group (310.0±20.1) as shown in figure (3).

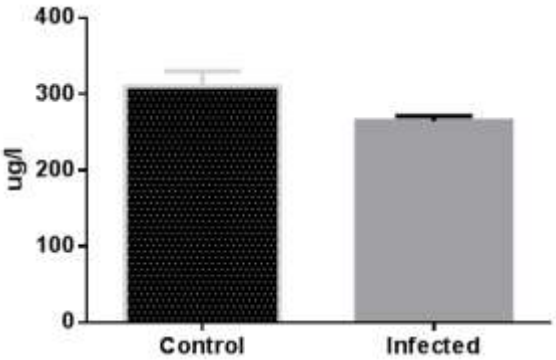

Figure 3: Serum hepcidin Concentration in both groups

DISCUSSION

The present study demonstrate that the iron, serum ferritin and serum hepcidin significant reduced in children with E. histolytica infection compared with children without any infection. Reduce in level of iron in children with E. histolytica resulting to the pathogenicity of E. histolytica dependent on the assosciation between iron level and adhesion of E. histolytica on epithelial cell [12]. The present study is in agreement with the study of Weinberg who reported that the E. histolytica utilizes serum ferritin like iron source and these process lead to reduce in level of ferritin of human infected with this parasite compared to healthy persons [13]. In study carryout by Oguntibeju [14] referred that the association between parasitic infestations and modifications in haematological parameters resulting into anaemia. Evidence from community researches referred the role of E. histolytica and G. lamblia infection in the iron deficiency anemia has been reported by other studies [15-16].

CONFLICT OF INTEREST

None

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