

Prevalence of *Entamoeba histolytica* and *Giardia lamblia* in Children in Kadhmiah Hospital

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Summary

In this study we collect 1520 stool samples during the period from September to December 2010 from children whom their ages between 1 month - 12 years. The results showed that the total infection of *Entamoeba histolytica* was 9.80% , and *Giardia lamblia* was 1.77%. And the male ratio that infected with *Entamoeba histolytica* was 9.83% , while the female ratio was 9.74%; and the male infected with *Giardia lamblia* was 1.51% , while the female ratio was 2.18%. The result showed that the high average of infection with *Entamoeba histolytica* and *Giardia lamblia* in age group from 1 month to 2 years. And there is no significance difference between gender and infectivity rate of *Entamoeba histolytica* and *Giardia lamblia* under $P \leq 0.05$. Also it showed that there were significant relation between Age group and infectivity rate of *Entamoeba histolytica* and *Giardia lamblia*.

Keywords: *Entamoeba histolytica*, *Giardia lamblia*, Prevalence, Age group, gender.

انتشار طفيلي *Entamoeba histolytica* و *Giardia lamblia* في الاطفال في

مستشفى الكاظمية

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الخلاصة

جمعت 1520 عينة غائط من اطفال تراوحت اعمارهم ما بين شهر واحد – 12 سنة للفترة ما بين شهر ايلول – شهر كانون الاول لعام 2010. اظهرت النتائج ان نسبة انتشار طفيلي الزحار الاميبي *Entamoeba histolytica* كانت 9.80% ، وانتشار طفيلي *Giardia lamblia* 1.77% من نسب العزلات الكلية. وكانت نسبة انتشار الاصابة بطفيلي *Entamoeba histolytica* في الذكور 9.83% فيما كانت نسبة انتشار الاصابة بالطفيلي نفسه في الاناث 9.74%. اما نسبة انتشار الاصابة بطفيلي *Giardia lamblia* في الذكور 1.51% اما نسبة انتشار الاصابة بالطفيلي نفسه في الاناث 2.18%. اظهرت النتائج كذلك ان اعلى نسبة للاصابة بطفيليات *Entamoeba histolytica* و *Giardia lamblia* كانت في الاطفال الذين تراوحت اعمارهم بين شهر واحد – 2 سنة. واطهرت نتائج التحليل الاحصائي عدم وجود فروق معنوية عند مستوى احتمالية ($P \leq 0.05$) عند دراسة العلاقة ما بين الجنس ومعدل الاصابة بطفيليات *Entamoeba histolytica* و *Giardia lamblia*. ، فيما كانت الفروق معنوية عند دراسة العلاقة ما بين الفئة العمرية ومعدل الاصابة بطفيليات *Entamoeba histolytica* و *Giardia lamblia*.
كلمات مفتاحية: طفيلي , الزحار الاميبي, الاطفال .

Introduction

The spread of Contagious and parasitic diseases of the digestive tract are facilitated by unsatisfactory sanitary conditions which result from the damage of plumbing and sewage systems (mostly as the effect of the warfare) (1). Every day 0.5 million tons of sewage is dumped into Iraqi rivers which contaminated the major source of drinking water in the country. This situation relatively leads to outbreak epidemics of various diseases (2) such as giardiasis and amoebiasis.

In 2001 it has been reported of 652314 cases of amoebiasis (2477 was infected out of 100 thousand people) and 563642 cases of giardiasis (2141 for every 100 thousand people) (3). The combined amoebiasis and giardiasis prevalence of infections in general population occur in all regions of the country, especially in the summer months.

Amoebiasis is still a big problem of human civilization at the beginning of 21st century, so every study in this field is valuable. Amoebiasis is caused by *Entamoeba histolytica*, a parasitic protozoan, which infects predominately human and other primates (4).

Entamoeba histolytica is the most common form of enteric disease; it is the agent of amoebic dysentery. This parasite not only causes severe diarrhea but can cause abscesses in the intestine, liver, lung and other organs. Around 500 million people are infected worldwide while 75,000 die because of annually, and it ranks third on the list of parasitic causes of death worldwide behind malaria and schistosomiasis (5).

Giardiasis is an infectious disease that present all over the world but spread more in the third world countries like Iraq, where is bad sanitary and living conditions. It is a dangerous disease that affect children and adults and lead to malabsorption syndrome and weight loss in the infected persons. (6). *Giardia lamblia* is a waterborne protozoan parasite and a common cause of intestinal disease in all parts of the world. (7, 8 and 9). This primitive eukaryotic cell has two forms: the trophozoite and the cyst. The trophozoites spend their entire life within the intestinal lumen of their host, whereas cysts are released within fecal material, which constitutes the mode of spreading the infection from host to host. The infective dose in humans is between 10 and 100 cysts (10). *Giardia lamblia* can produce a wide spectrum of clinical manifestations, from asymptomatic to acute or chronic diarrhoea with malabsorption syndrome and weight loss (11). *Giardia lamblia* is considered to be an important cause of recurrent abdominal pain in children (12). So this study is aimed to investigate the prevalence of *Entamoeba histolytica* and *Giardia lamblia* in Kadhmiyah hospital for the period between September to December 2010.

Materials and methods

In this study 1520 stool sample collected from Kadhmiyah hospital for the period between September – December 2010 and the result concentrated on the prevalence of *Entamoeba histolytica* and *Giardia lamblia* and the relationship between these two parasites with gender and age. The stool samples were collected, examined macroscopically and microscopically to detect for the presence of *Giardia lamblia* and *Entamoeba histolytica* trophozoites and cysts stages. Data about age, sex and residence were recorded for each child on a special form (9). The results were analyzed statistically using the Chi-square test.

Results and Discussion

According to the gender the statistical analysis showed that there were no significant relation between gender and infectivity rate of *Entamoeba histolytica* and *Giardia lamblia* at ($P \leq 0.05$). The result showed that the number of patient infected with *Entamoeba histolytica* was 149 (9.80%) more than in *Giardia lamblia* 27 (1.77%). And the male is more infected with *Entamoeba histolytica* and *Giardia lamblia* than female. The percentage of infected male with *Entamoeba histolytica* was 91 (9.83%) and 58 (9.74 %) in female, while infected male with *Giardia lamblia* 14 (1.51%) and female infected 13 (2.18 %) (Table,1).

Table (1): Distribution of *Entamoeba histolytica* and *Giardia lamblia* according to the gender from the period between September – December 2010

	Male	Female	Total
<i>Entamoeba</i>	91 (9.83%)	58 (9.74%)	149 (9.80%)
<i>Giardia</i>	14(1.51%)	13 (2.18%)	27 (1.77%)
Non	820 (88.64%)	524 (88.06%)	1344 (88.42%)
Total	925	595	1520

The result showed that the high prevalence of *Giardia lamblia* recorded in September 14 patients (8 male, 6 female), while the lower prevalence was recorder in October and November in 4 patients. The high prevalence of *Entamoeba histolytica* recorder in September in 55 patients (32 male, 23 female) while the lower prevalence in December in 20 Patients (14 male, 6 female) [figure 1].

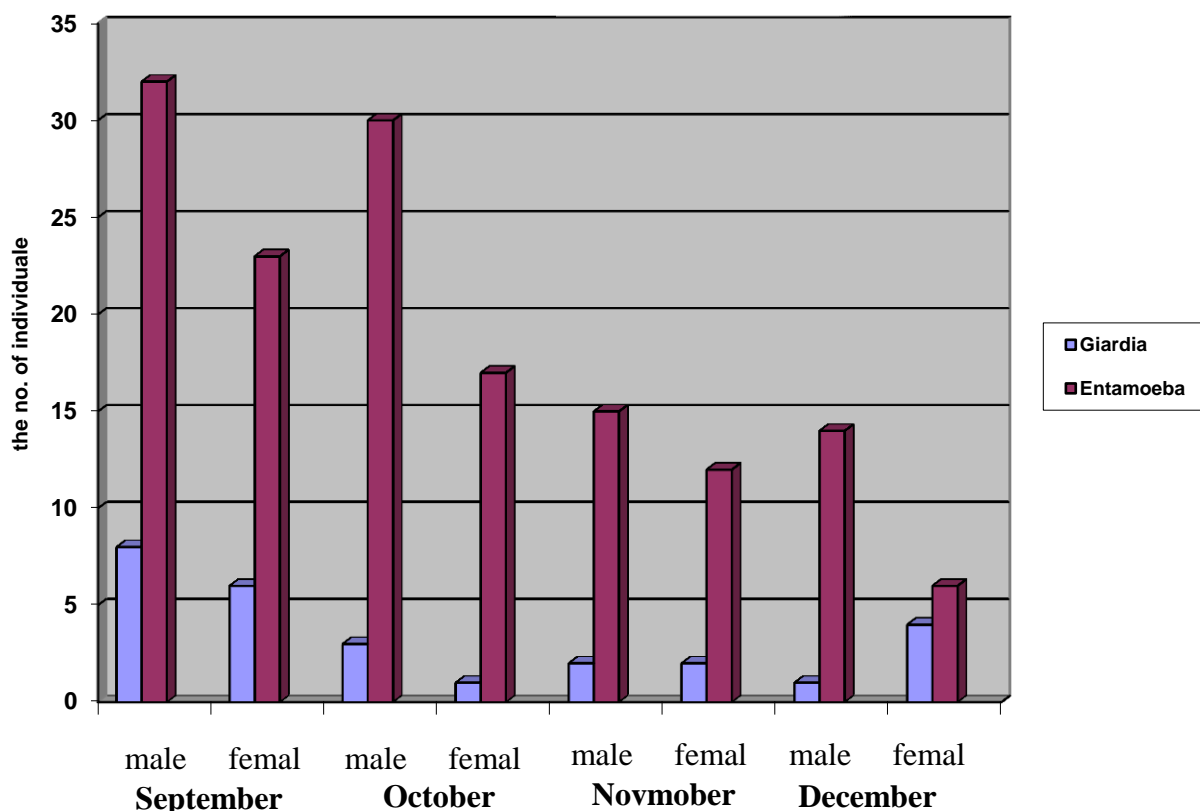


Figure (1): Distribution of *Giardia lamblia* and *Entamoeba histolytica* according to the gender from September – December 2010

According to the age the statistical analysis showed that there were significant relation between Age group and infectivity rate of *Entamoeba histolytica* and *Giardia lamblia* at ($P \leq 0.05$). It noticed the high prevalence of *Entamoeba histolytica* and *Giardia lamblia* in the age group 1 month -2 years (Table 2).

Table (2): Distribution of *Entamoeba histolytica* and *Giardia lamblia* according to the age group.

Age group (years)	<i>Entamoeba histolytica</i>	<i>Giardia lamblia</i>	Non infected	Total
1 month -2 year	99 (13.28%)	13 (1.74%)	633 (84.96%)	745
>2-4	28 (7.71%)	10 (2.75%)	325 (89.53%)	363
>4-6	12 (6.18%)	3 (1.5%)	179 (92.26%)	194
>6-8	5 (4.80%)	0 (0%)	99 (95.19%)	104
>8-10	2 (3.07%)	0 (0%)	63 (96.92%)	65
>10-12	3 (6.12%)	1 (2.04%)	45 (91.83%)	49

The results showed that there are differences to the prevalence between gender and two parasites. That the high prevalence of infection in male more than females. According *Giardia lamblia* this results agree with (9) who study the prevalence of *Giardia lamblia* in Duhok city and agreed with (13) whom they study frequency of *Giardia lamblia* infection in children with recurrent abdominal pain in Peshawar in India. According to *Entamoeba histolytica* this study agreed with (14) and disagrees with (15, 16 and 17).

The highest rate of the parasites was recorded at the age group 1 month – 2years then 2 – 4 years, and the reason of this high prevalence may be attributed to the low immunity against various pathogens as these age groups are comparatively less resistant to diseases as described in a previous study (18). And the other reason could be related to a number of factors such as poor health hygiene and toilet training, overcrowding, low socioeconomic status and climatic conditions (19). Additionally, the children feel free to play anywhere irrespective of the cleanliness or dustiness due to the absence of separate play grounds. The playing areas are main sources of diseases because waste materials of homes and industries are thrown there (17).

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