

## Study on the Prevalence of Intestinal Parasites Among Children Attending Al-Daura Health Centre-Baghdad

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### الخلاصة

تم دراسة نسب الإصابة بالطفيليات المعوية المرضية وكذلك الطفيليات غير المرضية لدى الاطفال ذوي الفئة العمرية (اقل من ٥ سنوات-١٤ سنة) لمراجعي المركز الصحي في منطقة الدورة في مدينة بغداد للفترة من تموز ٢٠٠٣ الى تموز ٢٠٠٤. تم اختيار (٣٥٠) عينة عشوائية من براز الاطفال. اظهرت النتائج ان (١٦٠) طفل اي (٤٥,٥%) مصابون، (١٤٠) منهم لديهم اصابات مفردة، (٢٠) اي (١٤,٩%) مصابون باكثر من نوع واحد من الطفيليات. اما باقي العينة وعددهم ١٩٠ طفل (٥٤,٢%) لم تثبت لديهم اي اصابة باي نوع من الطفيليات.

تبين الدراسة ان طفيلي الجيارديا اكثر شيوعا بين الاطفال وينسبة (٢٨,١%) يليها طفيلي المتحولة الحالة للنسيج والبلاستوسيسستس وينسبة (١٣,٧٥%) وكانت المتحولة القولونية و ايبودوميا بوجيلاي والكايلولوماستيكس ميسينيلي والندو لايمكس نانا من الطفيليات غير المرضية التي وجدت في هذه الدراسة وينسب (٢٥,٢٥%، ٣,١٢%، ١,٨٧% و ١,٨٧% ) على التوالي. اظهرت الدراسة ايضا ان نسب الإصابة بالديدان الطفيلية (١٨,٧٥%) هي اقل من نسب الإصابة بالطفيليات الاحادية الخلية (٦٨,٧١%).

الدراسة الحالية اظهرت ان الاطفال ذوي الفئة العمرية (اقل من ٥ سنوات) هم اكثر عرضة للإصابة بطفيلي الجيارديا (١٧,٥%) وطفيلي البلاستوسيسستس (٩,٣٧%) بينما تكثر اصابات المتحولة الحلة للنسيج (١١,٢٥%) في الفئة العمرية (٥ - ١٤) سنة، وتزداد نسب الإصابة بالديدان الطفيلية بازدياد العمر.

### Abstract

The present study on the prevalence of intestinal parasitic infection from July 2003 to July 2004, was conducted among children aged (less than 5 - 14) years attending AL-Daura Health Centre in Baghdad City. (350) specimen were choosen randomly and examined, 160(45.7%) of these were infected, 140 (87.5%) harboured one parasite while 20 (12.5%) harboured more than one parasite. 190 (54.3%) were non infected with any of intestinal parasite.

It was observed that the most common intestinal protozoa among children is *Giardia lamblia*, followed by *Entamoeba histolytica* and *Blastocystis hominis* with prevalence rate of infection (30.75%) for the last two parasites.

Non pathogenic protozoa (*E. coli*, *I. butschlii*, *C. mesenili* and *E. nana*) were found with a prevalence rate of (6.25%, 3.12%, 1.87%, 1.87%) respectively.

This study revealed that the prevalence rate of helmenth infection (18.75%) was lower than the protozoa (68.71%). It was found that children in the age group (less than 5) years are more susceptible to the infection with *G. lamblia* (17.5%) and *B. hominis* (9.37%), while the infection with *E. histolytica* was within the age group (5 - 14) years. Prevalence of infection with helminths increases with age.

### Introduction

Parasitic diseases are receiving increasing attention in developed countries because of their importance in travelers, imigrants and immunocompromised persons<sup>(5)</sup>. One of these of medical importance are the intestinal parasites which includes protozoa and helminths that constitutes a common puplic health problem in the tropical and subtropical areas. Helminths propably infect over 2 billion persons and are especially common and debilitating in children<sup>(11)</sup>. Many studies on the prevalence of intestinal parasites have been carried out in different parts of the world

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have shown the presence of a relationship between the environmental changes and the occurrence of the infection <sup>(10)</sup>.

Intestinal parasitic infections are common in Iraq ,it's existence depends on ecological factors, crowding effects ,personal ,community hygiene and sanitation. Many studies were carried out on different communities in Iraq had showed different results <sup>(1,8)</sup> .

Prevalence of infection of intestinal parasites was studied in a sample of children aged (less than 5 -14) years because they are more susceptible to the infection with diseases .

## Methodology

Stool samples were collected randomly from (350)children aged (less than 5 - 14 ) years attending Al –Daura Health Centre in Baghdad city during from July 2003 to July 2004 .Each sample was routinely examined by applying direct stool examination method (9) for the detection of enteric parasites (eggs, cysts, trophozoites, adults and segments). The process was carried out in the clinic laboratory .

## Results

**Table (1): A :The percentage of parasitic infection isolated from (350) specimen**

Type of infection	No.	Percentage(%)
Positive	160	45.7%
Negative	190	54.3%
Total	350	100%

**B: The percentage of children showing the evidence of one or more of intestinal parasitic infection:**

Parasites of positive stools	No.	Percentage(%)
Single	140	87.5%
Mixed	20	12.5%
Total	160	100%

Table (1) shows that (45.7%) of the sample is +ve and (54.2%) is –ve for the infection. (87.5%) of the +ve sample contains single infection while (12.5%) contains mixed infection .

**Table (2): The percentage of infective parasites isolated from (140) single infection**

Parasite	No.	Percentage(%)
<b>Protozoa</b>		
<u>Giardia lamblia</u>	45	28.1%
<u>Entamoeba histolytica</u>	22	13.75%
<u>Blastocystis hominis</u>	22	13.75%
<u>Entamoeba coli</u>	10	6.25%
<u>Iodamoeba butschlii</u>	5	3.12%
<u>Chylomastix mesenili</u>	3	1.87%
<u>Endolimax nana</u>	3	1.87%
	Total=110	Total =68.71%
<b>Helminths</b>		
<u>Hymenolepis nana</u>	12	7.5%
<u>Enterobius vermicularis</u>	10	6.25%
<u>Ascaris lumbricoidis</u>	4	2.5%
<u>Trichuris trichura</u>	4	2.5%
	Total =30	Total =18.75%
Total	140	87.5%

Table (2) revealed that the highest prevalence of infection was G. lamblia (28.1%) followed by (13.75%) E. histolytica and B. hominis.

**Table (3): The percentage of parasitic infections with regard to the age groups: Age groups (years)**

Parasites	Less than 5		5 -14		Total	
	No.	%	No.	%	No.	%
<b>Protozoa</b>						
<u>Giardia lamblia</u>	28	17.5	17	10.6	45	28.1%
<u>Blastocystis hominis</u>	15	9.37	7	4.37	22	13.75%
<u>Entamoeba histolytica</u>	4	2.5	18	11.25	22	13.75%
<u>Entamoeba coli</u>	4	2.5	6	3.75	10	6.25%
<u>Iodamoeba butschlii</u>	2	1.25	3	1.87	5	3.12%
<u>Chylomastix mesenili</u>	-	-	3	1.87	3	1.87%
<u>Endolimax nana</u>	-	-	3	1.87	3	1.87%
<b>Helminths</b>						
<u>Hymenolepis nana</u>	-	-	12	7.5	12	7.5%
<u>Enterobius vermicularis</u>	4	2.5	6	3.75	10	6.25%
<u>Ascaris lumbricoidis</u>	1	0.6	3	1.87	4	2.5%
<u>Trichuris trichura</u>	-	-	4	2.5	4	2.5%
Total					140	87.5%

Table (3) Shows that the highest prevalence of G.lamblia and B. hominis was within the age group (less than 5 )years , it was observed also that the prevalence of infection with helminthes increases with age .

## Discussion

Intestinal parasites are common in Iraq and varied from one area to another depending on environmental factors ,personal hygiene and sanitation and human customs .

The characteristic features of the sample is shown in(Table-1-),out of (350) sample examined 160 (45.7%) were +ve and 190 (54.2%) were –ve for the infection . (57.5%)of the infected patients have one of parasite while (14.9%) have more than one parasite .

The high prevalence of *G.lamblia* infection (28%) followed by (13.75%) of both of *E.histolytica* and *B. hominis* (table -2-) was probably related to lower standards of hygiene and sanitation ,also unfiltered water and person to person contact are believed to be important source of infection<sup>(4)</sup>.Intstinal Permeability studies on the protozoan parasites indicates that it increases with patient with *G. lamblia* and *B.hominis* but not with *E.coli* infection which causes damage to the intestinal wall and causes diarrhea to the patient <sup>(4,7)</sup>.

*E.coli* , *I. butschlii* , *C. mesnili* , and *E. nana* were identified in low percentage in this study

Helminths infection showed much less prevalence (18.75%) (table-2-) including *H.nana* , *E.vermicularis* , *A. lumbricoidis* and *T. trichura* .these rates were higher than those reported by (Abdul-Wahab, et al) which was carried out on preschool children in Baghdad city ,however ;their presence indicates inadequate personal and community hygiene and sanitation<sup>(1)</sup>.

It was observed from table (3) that children aged (less than 5) years were more susceptible to the infection with *G. lamblia* (17.5%) and *B. hominis* (9.37%),this could be attributed to malnutrition during infancy that caused diarrhoeal disease and parasitic infections during childhood <sup>(2)</sup> <meanwhile it was noticed that *E. histilytica* infections (11.25%) was mostly occurred in the age group (5 -14 ) year which included school children ,this depends on human custom ,crowding and environmental conditions <sup>(8)</sup>.

Bad personal hygienic habits including playing on floor ,nail biting and failure to wash hands before meals increase the risk of infections with pin worms (*E. vermicularis*) <sup>(12)</sup> and helps in the transmission of the parasite via fecal –oral route in case of *H. nana* infections whih are mostly occurred in age groups (5 -14 ) years as shown in table (3) as well as the presence of the two soil transmitted helminthes *A. lumbricoides* ,*T. trichura* in the same age group was associated with unhygienic behavioral factors .

## Recommendations

1. Further study among different regions should be applied to illustrate the importance of different environmental conditions on the prevalence of the infection .
2. The study had clarified the need for the proper control measures wich might be essential to reduce the incidence of infection in the community .

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