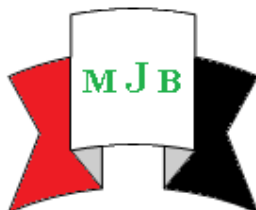


Prevalence of Intestinal Parasitic Infection in Children Under Five-Year in Hilla, Babylon Province

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Abstract

Out of 349 stool samples, 138 (39.5%) were infected with intestinal parasites. The prevalence rate was 82 (34.4%) for male and 56 (50.1%) for female. The prevalence of intestinal parasites was high in bottle feeding children 58 (52.2%) compared to children with breast feeding 32 (31.4%). The predominant intestinal parasite was *Entamoeba histolytica* (13.2%), followed by *Giardia lamblia* (8.3%), *Hymenolepis nana* (7.2%), *Entrobus vermicularis* (6.0%) and *Entamoeba coli* (5.2%).

الخلاصة

من ما مجموعه (٣٤٩) عينه ١٣٨ (39.5%) كانوا مصابين بالطفيليات المعوية بنسبة انتشار ٨٢ (34.4%) للذكور و ٥٦ (50.1%) للإناث. نسبة انتشار الطفيليات المعوية في الأطفال الذين يعتمدون على الرضاعة الاصطناعية كانت أعلى (52.2%) مقارنة مع الأطفال المعتمدين على الرضاعة الطبيعية ٣٢ (31.4%). كما إن طفيلي الاميبا الحالة للنسيج هو الأكثر انتشارا حيث بانته نسبة الإصابة 13.2% ثم تبعته الجيارديا لامبليا بنسبة 8.3% والدودة الشريطية القزمية بنسبة 7.2% والدودة الدبوسية 6.0% واميبا القولون 5.2%.

Introduction:

Intestinal parasitic infections are among the major public health and socio-economic concerns that adversely affect the well-being of the poor in developing countries. It has been estimated that *Ascaris lumbricoides*, hookworm and *Trichuris trichiura* infect 1,450 million, 1,300 million and 1,050 million people worldwide, respectively, while schistosomiasis affects over 200 million people (1). *Entamoeba histolytica* and *Giardia lamblia* are also estimated to infect about 60 million and 200 million people worldwide, respectively (2). In children, intestinal parasitic infections, particularly soil-transmitted

helminthiasis is the cause of common health problems in tropical countries. Younger children are predisposed to heavy infections with intestinal parasites since their immune systems are not yet fully developed (3), and they also habitually play in fecally contaminated soil. In addition to considerable mortality and morbidity, infection with intestinal helminthes has been found to profoundly affect a child's mental development, growth and physical fitness while also predisposing children to other infectious agents (4-8).

Several factors like climatic conditions, poor sanitation unsafe drinking water, and lack of toilet

facilities are the main contributors to the high prevalence of intestinal parasites in the tropical and sub-tropical countries (9). Further, lack of awareness about mode of transmission of parasitic infections increases the risk of infection.

Hence a better understanding of the above factors, as well as, how social, cultural, behavioral and community awareness affect the epidemiology and control of intestinal parasites may help to design effective control strategies of these diseases.

Materials and Methods

349 Fecal samples were collected from patients attending to Babylon hospital for gynecology and pediatric through June, July and August/2013, they consisted of 238 from males and 111 from females. The groups of population from which samples were taken that include children under five years. The samples of stool were collected in clean universal screw cap bottle at 9 o'clock in every morning, one gram of the feces was kept for half o'clock to be readily examined by direct smear method and the rest was mixed with 10 ml of formal saline (10%) solution as fixative and preservative.

Before microscopic examination of stool samples the feces was examined by the naked eye for its characteristics such as its consistency, color, texture and also for the presence of larvae or adult of nematodes and/or segments of cestodes. The direct smear method was used to all samples but, if the infection with parasites is light, must be utilized with the

concentration techniques by using Zinc-sulfate floatation technique in order to detect the of floated helminthes eggs and/or cysts of protozoa (12).

Statistical Analysis

For finding the differences according to different parameter chi-square (χ^2) test was used for statistical analysis of these samples by stratigraphic program.

Results and Discussion

According to the results of this study, there was significant differences ($p < 0.05$) in the prevalence of intestinal parasites among different sex, ages (table 1). The rate of infection with parasites in female was higher than in males (16.0%). The high rate of infection in females (19.0%) may be due to the household activities, such as; food preparation and cleaning which might expose them to parasites (13) this studying agreement with studies conducted by (14 and 15), on the other hand our result disagree with (16 and 17), in which they found higher rates of infection in males as compared with females, and they believed that the higher rate of infections with intestinal parasites in males may be due to the more activities and as they were more in contact with environmental conditions than females. Also this result shows close agreement with universal reports as regards infection with parasites in children aged less than 6 years (18) this due to contaminated milk and drinking water and personal hygiene measures.

Sex	Male			Female			Both sex		
Age (year)	No. Examine d	No. Infecte d	%	No. Examine d	No. Infecte d	%	No. Examine d	No. Infect ed	%
>1	55	12	22.0	32	10	31.2	87	22	25.2
1	40	13	32.5	20	8	40.0	60	21	35.0
2	74	16	34.0	21	9	43.0	68	25	38.0
3	31	10	32.5	12	8	67.0	43	18	42.0
4	28	12	43.0	12	9	75.0	40	21	52.0
<5	37	19	51.3	14	12	86.0	51	31	61.0
total	238	82	34.4	111	56	50.1	349	138	39.5

Calculated X^2 20.7 Tabled X^2 18.3

Table (1) percentage of infection according to sex and age.

The results found in table (2) appear the highest percentage of infection occurs with amoebiasis (13.2%) then followed by giardiasis (8.3%) while the lowest percentage of infection was in infection with *E. coli* (5.2%). this

results is in agree with (19,20) they reported the magnitude of intestinal parasitic infections among under-five children and the highest infection with ameabiasis, giardiasis and entrobiasis.

Parasite	No. examined	No. infected	%
<i>E. histolytica</i>	90	46	13.2
<i>G. lamblia</i>	48	25	8.3
<i>H.nana</i>	54	25	7.2
<i>E. vermicularis</i>	78	20	6.0
<i>E. coli</i>	37	18	5.2
Total	349	138	39.5

Table (2) diarrhea caused parasite in children.

The results in table (3) show the relationship between type of feeding and parasitic infection, It was reported a significant differences ($p<0.05$) according to type of feeding.

Breast milk has a number of beneficial properties that may explain why it should protect against gastrointestinal infection in infants, Colostrum in particular has a high concentration of secretory IgA, "which may protect through the enteromammary' and bronchomammary pathways."

The most important risk factor to acquire *E. histolytica* infection was found to be related to breast feeding practice with significantly higher percentage of inadequate breast feeding among *E. histolytica* cases especially infants under one year. This can be explained by the fact that colostrum and mature human milk have significant lethal effect on *E. histolytica* and protect against its infection in breast-feed children, This lethal effect is accomplished by bile salt-stimulated lipase in human milk, which kills the parasite (21).

Feeding type	No. examined	No. infected	%
Breast feeding	102	32	31.4
Bottle feeding	111	58	52.2
Mixed feeding	136	48	35.5
Total	349	138	39.5

Calculated

X^2 13.1 Tabled X^2 9.49

Table (3) relationship between feeding type and parasitic infection

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