

EPIDEMIOLOGICAL STUDY OF GIARDIASIS AMONG CHILDREN UNDER FIVE YEARS IN AL-MAAMMIL CITY⁺

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Abstract :

210 stool sample were collected from children under five years, attending primary health care center in Al – Maammil city .

150 Sample were positive for Giardia lamblia .

Infection rate was 71.43% the ratio among boys was (38.10) while for girls the ratio was (33.33%) .

The body weight and height of infected children were measured, by simple scales and Meter, also they were asked to fill a questionnaire chart .

The rate of low growth rate among infected children was estimated about 64.67% .

Higher infection rate was detected among children whom their mothers with low stander of education (61.72%) , low infection rate 17.63% was found among breast fed children , Among families with low income the infection rate was 56% .

Giardiasrs infection were found in the children with different source of water, tanks (86.67%) which recorded high mean of score at ($p < 0.1$) in comparison with other source of water for the study sample .

Also found that the main signs and symptom correlated with it was diarrhea, lipid stool, which consist the ratio of (35.33%) and(23.33%), receptively but the majority of the infected children had the infection with no signs and symptom (41.33%), of the children who have the infection So the significant difference between the children having the signs and symptom or not having it was at ($p < 0.1$) .

No significant difference was detected between the prevalence rate in age of girls and boys at the level of ($p > 0.5$) .

That is to say that the total prevalence rate form both sexes (71.43%) 33.33% for girls which is less than boys (38.10%) with non significant difference at ($p > 0.5$) .

For children with low growth rate, it is worth to say the rate was 64.67% of the infected children with significant differences at level ($p < 0.1$) at comparison with the children of normal growth rate of the total infection cases .

المستخلص :

لقد تم جمع (210) عينة من براز الأطفال بعمر أقل من خمسة سنوات المراجعين إلى المركز الصحي في مدينة المعامل التابعة لمحافظة ديالى / بعقوبة بواسطة حاويات بلاستيكية، وتم إجراء الفحص المجهرى المباشر للتحري عن طفيلي جيارديا لامبليا وبعد أكمال عملية الفحص وجد أن (150) طفل من العينة كان مصاب بالطفيلي لتكون نسبة الإصابة الكلية 71.43% وكانت حصة نسبة الإصابة في الإناث 33.33% وهي أقل مما في الذكور حيث بلغت نسبة الإصابة 38.10% حسب جدول رقم (1) .

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تم اخذ الطول والوزن للأطفال المصابين وتم اخذ المعلومات عن الأطفال من أمهاتهم ومألت استمارات الاستبيان و مقارنة الأوزان مع WHO growth chart لتقييم (أقل من الوزن الطبيعي) حيث كانت نسبة الأطفال المصابين دون الوزن الطبيعي (64.67%) .

سجلت أعلى نسبة أصابه بين الأطفال لأمهات ذات المستوى الثقافي المنخفض كذلك كانت أقل نسبة إصابة بين الأطفال الذين يرضعون رضاعة طبيعية كذلك وجد ارتفاع في نسبة الإصابة لدى الأطفال الذين يعيشون في عوائل منخفضة الدخل والذين يشكلون (56%) من مجموع المصابين .

وجد ارتفاع نسبة الإصابة بالطفيلي لدى الأطفال الذين يتناولون الماء من الأحواض المتقلبة بنسبة (86.67%) وقد يكون السبب نتيجة التركيز على المدينة مقارنة بالريف وهذا ما تم أثباته بموجب استمارة الاستبيان وقد شكلت فرقا معنويا عاليا عن ($p < 0.01$) بالمقارنة بمصادر المياه الأخرى التي تستخدم من قبل عينة البحث .

كذلك وجد أن أهم الأعراض المرافقة كانت الإسهال والبراز الشحمي والذين شكلت نسبة (35.33%) و(23.33%) على التوالي ولكن الغالبية العظمى من الأطفال المصابين تكون الإصابة منها بدون أعراض و الذين يشكلون (41.33%) من المصابين وبذلك فأنه اختيار معنوية الفرق ما بين المصابين بالأعراض المرافقة من عدمها هو بدلالة معنوية عن ($P < 0.01$) .

لا توجد أية فروقات معنوية بين نسبة الإصابة بطفيلي الجيارديا لأمهات باختلاف أعمار الإناث و الذكور عن مستوى ($P > 0.05$) .

تكون نسبة الإصابة الكلية (من كلا الجنسين) هي (71.43%) وكانت حصة نسبة الإصابة من الإناث فيها هي (33.33%) وهي أقل مما في الذكور، حيث بلغت نسبة الإصابة فيها هي (38.10%) وبفارق غير معنوي عن ($P > 0.05$) .

لتقييم معدل النمو حيث كانت نسبة الأطفال أقل من النمو الطبيعي (64.67%) من المصابين وبفارق معنوي عن مستوى ($P < 0.01$) بالمقارن مع المصابين بالطفيلي .

Introduction

Giardiasis is a major diarrheal diseases found through-out. Giardia lamblia agent, is the commonly identified intestinal parasite in the world.[1]

Giardiasis occurs in all ages but is most common in early childhood , except in epidemic in which some age groups are affected equally . infants younger than 12 months are less likely to be infected older children .[2]

In develop the world , it is common for more than 20% of the country's population to have any infection .[3]

Some people who get giardiasis don't become ill, but they may spread the parasite to other people . Giardiasis may be spread in day care center if worker are. it carful to wash their hands each time changing diapers .[4]

The prevalence of giardia in stool specimens submitted for ova and parasite examination has been reported to be 2 – 5 % in industrialized countries and 20-60% in developing countries .[5]

The last reported data showed that the highest prevalence of infection was Giardia lamblia 54.8% while the other intestinal parasite comprised 45.2% .[6,7]

Materials and Methods :

1- A total of (210) children aged under five years were included in this study, (110) boys and (100) girls, all were attending health centers in Al-Maamal (mother , child care unit) . This work has been carried out in Al-Maamal city, of Baqupa governorate .

A single stool sample was collected in small plastic containers : Examination by direct methods using saline and solution was carried out soon after arrival [5] (150) sample were positive for Giardia lamblia cyst and trophozoite .

The positive patient were asked to fill questionnaire chart (Figure 1) (as in the form included) .

The study group fill the chart with information about the presence of diarrhea , with or without fat , type of feeding , mothers education and economic status of the families .

The data obtained were compared with the growth chart (incised with result) which is available in the primary health centers (PHC) .

2-statistical analysis

The usual statistical analysis were used in order to assess and analyze the results, they includes :

I- Descriptive statistics :

a- statistical tables .

b- observed frequencies with their percentages .

II- Inferential statistics :

a- t – test : comparison significant between two ratios .

b- multiple t – test : comparison significant between several ratios .

c- K.S. test : (kolmyror – Simemor) comparison significant between several observed frequencies .

Figure 1
استمارة الاستبيان لمرضى الجيارديا لامبليا

أ- المعلومات الشخصية		
١- الاسم الثلاثي	٢- العمر	٣- الجنس
٤- الم	٥- الو	٦- الأعراض و العلامات
أ- إسهال	ب- خروج عادي مع الشحم	ج- بدون أعراض
٧- نوع التغذية	أ- رضاعة طبيعية	ب- رضاعة اصطناعية
٨- مصدر ماء الشرب	أ- حنفية	ب- نهر
٩- التحصيل العلمي للام	أ- أمية	ب- تقرأ و تكتب
١٠- مهنة الأم	أ- ربة بيت	ب- موظفة
١١- مهنة الأب	أ- كاسب	ب- موظف
١٢- هل الأم تعمل بعد الدوام	أ- نعم	ب- كلا
١٣- هل الأب يعمل بعد الدوام	أ- نعم	ب- كلا
١٤- حجم الأسرة		
١٥- عدد الكاسبين		

- ١٦- نوع السكن أ- ملك ب- أيجار ج- مع الأهل
١٧- هل لديكم سيارة أ- نعم ب- كلا
١٨- معدل الاندخار أ- يدخر ب- لا يدخر

Result and Discussion :

Table (1) the infection ratio of Giardiasis.

Sex	Sample	Case	Infection rate
Male	110	80	72.72
Female	100	70	70.0
Total	210	150	71.42

Significant . at ($p < .05$) .

This table show that infection rate was estimated about (71.42%).

Table (2) Distribution of the study group according to age and sex.

Years	Male	Female	Total
Less than 1	20	20	40
1	20	20	40
2	20	20	40
3	25	20	45
4-5	25	20	45
Total	110	100	210

Non significant . at ($p > .05$) .

This table show that like (table 1).

Table (3) infection with Giardiasis according to symptoms.

Symptoms	Cases	Infection rate
Diarrhea	53	35.33
Steatorrhea	35	23.33
Asymptomatic	62	41.33
Total	150	99.99

Significant . at ($p < .05$)

This table show indicate that sever infection.

Table (4) infection with according to nut rational status.

Nut rational status	Cases	Infection rate
Normal	53	35.33
Malnutrition	97	64.66
Total	150	99.99

Significant . at ($p < .05$)

This table show concluded that 64.66% of infection children were malnutrition .

Table (5) infection with Giardiasis according o feeding practice.

Feeding practice	Cases	Infection rate
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Breast	26	17.33
Bottle	50	33.33
Mix	74	49.33
Total	150	99.99

Significant . at ($p > .05$) : (multiple t – test = 34.56)

This table show that breast feeding children lower infection rate (17.33%).

Table (6) infection with Giardiasis according to maternal education.

Level of education	Cases	Infection rate
University	Zero	Zero
High school	5	3.33
Primary	19	10.66
Write & read	34	12.66
Ignorant	92	61.33
Total	150	99.98

Significant . at ($p < .01$) : (K.S.= 0.4413)

This table indicated lowest rate 3.33% investigated among with high education.

Table (7) infection with Giardiasis according to economic status of family.

Level economic	Cases	Infection rate
High income	16	10.66
Moderate	50	33.33
Low	84	56.00
Total	150	99.99

Significant . at ($p < .01$) : (multiple t – test =69.36)

This table show high rate was detected among low income families (56.00%).

Table (8) infection with Giardiasis according to the source of water.

Source of water	Cases	Infection rate
Tanker	130	86.66
River	16	10.66
Well	4	2.66
Total	150	99.99

Significant . at ($p < .01$) : (multiple t – test =290.16)

This table show that those who used tanker had experienced higher rate of infection (86.66%) than other source of water.

Discussion:

In this study the infections rate was estimated about 71.42% (Table 1 , 2) this rate is higher than previous epidemiological study carried out in the mid area of Iraq [7] . Could be due to the way of choosing samples. As mentioned in the material all samples were collected from children attending PHO .

From the growth Chart (WHO) (Figure 2) we concluded that 64.66% of infected children were low growth rate (Table 4) . It is well know that giardiasis cause dysfunction of intestinal absorption especially in severe infection (Table 3) . his lead to decrease in the amount of iron and vitamins absorbed from food and hence malnutrition occurs [7] .

Malnutrition can be either primary or secondary origin primary from is due to in adequate intake of food containing the essential nutrients . In secondary malnutrition, adequate diet is available but because of illness or medical treatment, nutrients cannot be ingested , absorbed or metabolized adequately . Both forms of malnutrition frequently reinforce each other [8] .

As we are dealing with children less than five years, therefore feeding practice play an important role in the susceptibility to infection (Table 5) , show this negative relation , it was estimated that breast feeding children show lower infections ratio (17.33%) in comparison with other types of feeding parasitic . This meets with the finding in previous studies [9] .

Maternal education and economic status of the family both affected in the infections ratio among children . The lowest ratio 3.33% was investigated among mothers with high education .

Higher rate was detected among low income families (56.00%) (Table 6) .

High infection rate with Giardiasis seems to be linked to the source of drinking water . (Table 7) suggest that those who used tanker had experienced higher rate 86.66 % than other , this may be due to contamination of water treatment system by different way of contamination like contamination of water supplies with raw sewage [10]. (Table 8) .

Some people that used storage water that 86.66% from all people under studies . This could due to the exhaustion of chlore from storage water [11] .

Conclusion and Recommendation

- 1-The role of asymptomatic infection between Giardia lamblia infection and nutritional status .
- 2-The influence of infection on growth and development , careful consideration by those interested measure for control and prevention should be taken .
- 3-Our suggestion findings in this respect call for further large scale studies, intensive efforts to educate the public and to provide other safe public water supplies.

References

- 1-Andre Pennarot , Michell, (2006) . *Giardiasis . American Medicine*, Feb .22 .(1-10) midline article .
- 2-Ingraham , J . L . and Ingraham , C . A .(2004) . *Introductio to Microbiology* .3rd edition .Brooks/Cole Pacific Grove , C.A .pp. 8-13 .
- 3-Enrique chacon – Cruz , Douglas K , M . (2006) . *Intestinal – Protozoa diseases* . *Louisiana state university health sciences center* . Oct . 4 pp. 1-34 .
- 4-Nicholls S – 2000 . *Dignosis of Giardia infections in Colombia*. Abstract Volume IXV international Congress for tropical medicine and Malaria coerces Editors :santaf de Bogita , pp. 223 .
- 5-Saffar . M. J , Qaffari . J. Khlilian, A . R and Kosraean M. 2005.*Rapid re infection by Giarda lamblia after treatment in a hyper endemic area : the case against treatment* . health journal , vol 11 Nos 1 and 2 January .
- 6-W.O.H. *the world health report* .(1995) bridging the gaps world health forum 1995 ,16: pp. 377-3 .
- 7-Nandini , Shetty , Maithreyi , Narasimba , T.S. ,Raghuveer, Elizabeth, Elliot , M .J.G. Farthing and Ragini Macaan. *Intestinal amoebasisin south indianinfants and children* . Royal society of tropical medicine and hygiene, 1990. PP382-384 .
- 8-Reynolson , J A, Behnke , J.M ; Gracey , M; Harton-RJ; Spargo, R; Hopkins, R.M ; Constantine , CC ; Gilbert , F ; Stread , C; Hobbs, RP; Thomson , RC . *Effincacy of albendazole against Giardia and Hookworin in remote Aborginal community in the north of western Australia*, record 2 of 2- Medline (R) 1999/01-1999/10.
- 9-Andre , Pennardt . (2006) .Giardiasis in Mosby year book Ins. 1999. pp. 210-211, .
- 10-Hassan , A . H . Abu-Zeid . Moslem,V. Khan; Mohamed, S. Omar, Abdul - Karim; A . Al-Madani . *Relationship intestinal parasite in Urban communities in Abha to socio environmental factor* , Saudi Medical Journal, V:10 (6); pp.477-480, 1989 .

١-الجنابي، فرح عبد الكريم نادر . دراسة وبائية للطفيليات المعوية في مدينة بغداد رسالة الماجستير – كلية العلوم الجامعة
المستنصرية(2002)