

Incidence of Giardiasis Among Population at Wasit Province

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انتشار داء الجيارديا بين السكان في محافظة واسط

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الخلاصة :

هو طفيلي معوي مسوّط واسع الانتشار يصيب الإنسان في كل *Giardia lamblia* طفيلي أنحاء العالم . فحصت 100 عينة براز من المصابين بالأسهال خلال فترة ثلاثة أشهر (تشرين الأول ، تشرين الثاني ، وكانون الأول من عام 2011) باستخدام طريقة المسحة المباشرة والصبغ بالأيودين للتحري عن طفيلي الجيارديا لامبليا. قسّمت جميع عينات الدراسة الى خمس فئات عمرية . كانت الإصابة الكلية للطفيلي بنسبة 22%. ظهرت أعلى الأصابات (40%) في الفئة العمرية (1-10) سنة وأدناها في الفئة العمرية (11-20) سنة .كانت الأصابة بين الذكور هي الأعلى (26%) عمّا هو عليه في الإناث (16%).

Abstract :

Giardia lamblia, an intestinal flagellate parasite is widely prevalent in humans worldwide. A total of 100 stool samples from diarrhoeal patients during three months (October, November , and December, 2011) were examined by direct smear and lugol's iodine techniques to investigate *Giardia lamblia* parasite . The total human patients involved in this study were divided into five age groups . The overall prevalence of *G.lamblia* infection was 22%. The highest infection appeared the in age group (1-10) years old, and the lowest was in the age group (11-20) years old. Males were highly infected 26 % (13/50) than females 16% (9/50) in patient groups.

1. Introduction:

Parasites are organisms that find in another organisms their habitat and nourishment ⁽¹⁾. Some parasitic relationships are harmless, while in other cases a parasite can damage or even kill its host, so it causes severe disease, however, a variety of parasites cause chronic infections that last for long periods of time in their human host without much clinical symptoms⁽²⁾.

Risk factors for this high prevalence of Intestinal parasitic infestation being low levels of sanitation, lack of safe water supply, poverty poor environmental hygiene, low socio economic status and impoverished health services⁽³⁾.

Protozoa are single celled organisms, There are four groups of intestinal protozoa; the Amoebae, Flagellates, Ciliates and the Coccidia ⁽⁴⁾.

There are several intestinal flagellates ; that infect man, However *Giardia lamblia* is the only intestinal flagellate that is considered to be pathogenic ⁽⁴⁾. *Giardia lamblia* inhabits small

intestine and causes extensive morbidity worldwide ⁽⁵⁾. High prevalence rates of giardiasis has been reported 20% of the population in developing countries where low levels of education, poor household conditions, and low quality of drinking water constitute important risk factors , compared with 5% in the developed countries ,where it is associated mainly with travelling and water borne outbreaks ⁽⁶⁾⁽⁷⁾.The clinical features of giardiasis in humans range from asymptomatic cyst passage to severe diarrhea with malabsorption, abdominal cramps, nausea and weight loss ⁽⁸⁾⁽⁹⁾.

Common method to diagnose giardiasis is microscopic examination of fecal samples by visualizing the organism, either the trophozoites or the cysts, in unstained wet smears ⁽¹⁰⁾⁽¹¹⁾. Disappearing parasite cyst in fecal samples will not always mean uprooting *Giardia* from the intestine of infected persons because this parasite has periodic expulsion in alternative days or various hours of day and also has short latent time in some patients and there is always a probability of hiding it by bile pigments so that several samples may be needed from each patient for diagnosis and confirmation of giardiasis ⁽¹²⁾. The aim of the present study is to determine the prevalence of *G.lamblia* among population at Wasit Province.

2.Materials and methods:

In total, 100 fresh stool specimens of all age groups were tested at the Diagnostic Laboratory of the Al-karamah Teaching Hospital in Al- kut city, during the period from October to December 2011. The stool samples were collected in clean and label plastic containers and examined within 24 h from the disposal of faeces. Macroscopic examination of the samples was the first to determine the consistency. Second examination is microscopically by direct and concentration methods for presence of *Giardia* trophozoite and cyst stages and for detection of other parasites stages. The concentration method used in this study was the zinc sulphate floatation method ,two types of direct wet film preparation were done for each sample at the same time, 1 slide by using normal saline 0.9 % for detecting the motility of trophozoites and Lugol's iodine 5% slide for demonstrating structures at10X and 40X magnification ⁽¹²⁾.

3. Results and Discussion :

2.1 Results :

Among the 100 patients whose stool samples were examined at Al-karamah Teaching Hospital in Al- kut city during the period from October to December 2011, 22(22%) samples were positive and 78(78%) were negative (table 1).

Table 1. The Overall Prevalence of *G.lamblia*

Name of Parasite	No. of Examined sample	No. of infected sample	%
<i>G.lamblia</i>	100	22	22

Table (2) shows the distribution of positive cases in relation to the gender. The higher infection appeared in males 26% than female 16%.

Table 2. Distribution of Positive Cases According to the Gender

Name of Parasite	Male			Female		
	Examined	Infected	%	Examined	Infected	%
<i>G.lamblia</i>	50	13	26	50	9	16

The relationship between age and infection with *G.lamblia* appears in table 3. The large number of patients 8 / 20 (40%) was shown in age group (1-10) years old, while the low number 0/20 (0%) was in age group (11-20) years old.

Table (3) Distribution of Positive Cases According to the Age

Age groups (Year)	No. tested	No. positive	% Positive
>1	20	3	15
1-10	20	8	40
11-20	20	0	0
21-30	20	6	30
< 30	20	5	25
Total	100	22	22

3. 2 Discu ssion:

Results

of the present study in Wasit province showed that the transmission of *G. lamblia* is not only active, but it is on the rise. *G. lamblia* was the intestinal flagellate protozoan observed in the study area. The observed 22% overall prevalence of *G.lamblia* is consistent with those reported in Wasit, Iraq⁽¹⁶⁾, and in other countries⁽¹⁷⁾. In the sex-

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related incidence and intensity of infections, males recorded a higher incidence and intensity of infections than females. Our results are in agreement with results of Jassim *et al.*, (1986) in Kirkuk city⁽¹⁸⁾, Mahdi (1996) in Basrah city⁽¹⁹⁾, and Al-Saeed *et.al.*, (2001) in Dohuk city⁽²⁰⁾, 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.

The age-related differences in prevalence of *G. lamblia* indicated that high infection was in age group (1-10) years old. These results are in agreement with pattern of infection in previous studies ⁽²¹⁾⁽²²⁾. Infection with *G. lamblia*, on the other hand, was found to increase with age, reaching its highest in early age ⁽²³⁾. Probably, indicating reduced parental personal, eating habit and activities linked with soil contaminated with infected fecal matters. Ghauri and Maqbool, 1992 in Pakistan reported that the highest incidence of *G. lamblia* infection 26% was observed in children under 12 years old ⁽²⁴⁾. Also Previous studies had attributed the high endemicity due to poor environmental and personal hygiene, shortage of good water supply, and toilet habits⁽²⁵⁾.

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