

## Study of Prevalences of *Giardia Lamblia* in a Missan Governorate

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### Abstract:

This study was done during the period from October-2016 to end of March-2017, to study the prevalence of *Giardia lamblia* among patients with diarrhea. The number of examined samples of feces was 304. These samples taken from patients complain from diarrhea those attending General Hospital of Missan & some Primary Health Care Centers, at the age of infant to 50 years. These samples examined by Direct wet film preparation (by using Normal saline & Lugol iodine solution) & Examination of Sediment. The results of existing study as follow: The percentage of total infection of intestinal parasites during this study showed that the number of males slightly more than females. Nonsignificant differences found among percentage of total infection of intestinal parasites under study, while significant differences found among patients lives in rural & urban area. High prevalence of parasitic infection was occurred in Winter. Significant difference found among percentages of total infection of intestinal parasites in different ages.

**Key words:** *Giardia lamblia*, Epidemiology, Missan

### Introduction :

Diarrhea is defined as a disease caused by dysfunction in the digestive system caused by life-threatening and non-life factors. The increase in the number of times of defecation with the production of liquid or semi-liquid feces leads to loss of fluids and ions, causing dehydration and blood viscosity (Bhatia and Ichhpujani, 2004). Diarrhea is one of the most serious health problems faced by most of the world, including developing countries, and is an important cause of childhood disease and many of them, especially infants (WHO 1998). One of the most frequent symptoms of diarrhea is malabsorption, which leads to iron deficiency in the infection of the infected parasite called *Giardia lamblia* and *Entamoeba histolytica* as well as the infection of bacteria and viruses, all leading to sudden absorption of bad and damage to villi lining the intestines and poor absorption of proteins and carbohydrates and fats And calcium and vitamins in the ileum and fasting regions (Shah, 2002).

*Giardia lamblia* is one of the serious parasite that affects young adults and leads to poor absorption, weight loss, where adheres developed vegetative inner lining of the gut, causing atrophy of the intestinal villi and loss of digestive enzymes and thus a poor absorption of food

covered by the individual, leading to weight loss syndrome, causes this parasite flatness or lack of villi in cases of severe injury, which impairs the ability of absorption, causing diarrhea occurrence of liposomal (Brien, 1981).

and the infected man diarrhea either by direct contact or through contaminated food and water and eating food contaminated with human excrement and Alehio Nat-bearing pathological factors and the use of waste is treated chemically for the purposes of fertilization as well as the use of non-potable water (Lins and Silva, 2000).

The samples of this study was collected from beginning of November/2016 – end of Mar2017, fecal samples three hundred and four examined taken from infected patients with diarrhea & visitors of general hospital of Samarra & some primary health care centers. Present study included the patients who complian from diarrhea, so regulate sheet of questionnaire specific to each patient include the follow information;

- 1- Patient name
- 2- Age and sex of patient
- 3- Family persons number of patient
- 5- Residence site (urban or rural).

The fecal samples collected (one sample for each patient) in clean & dry plastic cap with wide opening and tight cover to prevent drying of sample and avoid contaminate it with urine that kill trophozoites in fecal samples .the samples examined in parasitology lab. in hospital immediately because delay of sample examine lead to trophozoites disappear particularly in acute dysentery, that cause difficultly in distinguish it.

**1.1 preparation of Solutions**  
**1.1.1 Normal saline**  
 It prepared according to (WHO ,2003)  
**2.1.1 Lugol's iodine stain solution**  
 It prepared according to (WHO ,1990)  
**Investigation of stool samples:**

## 2.1 Macroscopic Examination

The inspection of stool samples involve examination of the amount of feces, form it, onsistency and color it. In liquid or soft samples often trophozoites appear, while cystic phases appear in semisoft samples ( Turgeon and Fritsche,2001) . Feces may be contain blood or mucus, so should examine these parts separately and carefully because it may contain trophozoites of *E. histolytica* (Swash,1997). in state of reach more than one sample to the lab. at same time, the more liquid and mucus sample xamined firstly (AL- Bassam, *et al.*1990).

### 3.1 Microscopic Examination:

**1.2.3 Direct wet film preparation:** The fecal samples taken from patients suffer from diarrhea and examined according to direct wet film preparation by using normal saline and Lugol's iodine stain solution (WHO, 1991).

**2.2.3 Concentration Method**  
Using this method for concentration of parasitic factors existing because of numbers low in samples, when examining result of direct wet film preparation was negative, used in present study examination of sediment according to WHO [Singh *et al.*, 2009]. Statistical analysis of data was performed using t test (except of table2 was performed using f test) to detect statistical differences in relation of different parasitic infections [Agresti and Finlay, 2009].

### Results:

#### Total infection with parasite:

Table (1) shows the numbers of infected and non-infected and percentage of infection of examinees.

Number of examinees	Infected		Not infected	
	percentage(%)	the number	percentage (%)	the number
511	72.99	373	27.05	138

### Sex Effect:

Table (2) shows the incidence of *G.lamblia* in males and females. The percentage of infection among males and females was 83.40% compared to non-infected patients (16.59%). The percentage of infection among females was (64.13%) compared to non-infected women (35.86%).

**Table (2) shows the spread of parasite by sex between the sample of the study**

Sex	Number of examinees	Infected		Not infected	
		Num.	percentage	Num.	percentage
Male	235	196	83.40	39	16.59
Female	276	177	64.13	99	35.86

## Discussion

The study found that the incidence of male infertility is higher than that of females. This may be due to social habits or reason related to male activity, which increases the chances of exposure to sources of infection more than females. This is in line with the findings of Salman (2002).

Age effect:

In the present study, the percentage of *Giardia lamblia* age was calculated. Table (3) shows that the highest rate of infection was in the age group (11-9) years, with 85.26% followed by the age group (3-5) years, with a rate of 83.76% followed by the age groups (14-12) 8-6 years and rates of 82.45% and 74.71%, respectively, while the lowest rate of infection in the age group less than three years and by 73.46%.

**Table (3) shows the spread of parasite by age groups between the sample of the study**

Age group	Number of examinees	infected		Non infected	
		Number	Percentage %)(	Number	Percentage (%)
< Three years	98	72	73.46	26	26.53
5-3	117	98	83.76	19	16.23
8-6	87	65	74.71	22	25.28
11-9	95	81	85.26	14	14.73

<b>14-12</b>	<b>114</b>	<b>94</b>	<b>82.45</b>	<b>20</b>	<b>17.54</b>
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### Discussion:

The results of the current study show that children aged 9-11 years are the most vulnerable age group of parasites. This may be due to the presence of these children in overcrowded families with a low standard of living and, on the other hand, The sewage and its continuous blockages and the presence of some barefoot children in the waterways of these waters have helped in a lot of pollution of the hands and needs and clothes of the children of these causes, as well as the presence of children collectively so that there is contact between them, which provides a greater chance of infection.

### Impact of the nature of the housing area:

In the present study, the relationship between the nature of the area of residence and the rates of infection recorded was determined based on the area in which the examinee lives and as shown in Table (4). The percentage recorded in rural areas was higher (79.93%) than in urban areas infection 61.29%.

**Table (4) shows the spread of intestinal parasites according to the nature of the housing area between the study sample**

Area type	Num.	infected		Non infected	
		Num.	Percentage %)(	Num.	percentage
<b>Urban area</b>	<b>197</b>	<b>122</b>	<b>61.29</b>	<b>75</b>	<b>38.07</b>
<b>Rural area</b>	<b>314</b>	<b>251</b>	<b>79.93</b>	<b>63</b>	<b>20.06</b>

The results of the above table indicate that the highest rate of infection was recorded among individuals living in rural areas with 78.82% and the lowest percentage among urban dwellers with an incidence rate of 74.55%. The reason is that rural areas may have health conditions Also, there may be a large number of animals that are the cause of the collection of insects, including flies, which is the best carrier Mechanical for cysts and eggs Worms (Caccio *et al.*, 2003). These results were agreed with studies of Moussawi (2001) in the city of Karbala and Fahdawi (2002) in the city of Ramadi.

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