

Isolation of Some Intestinal Parasites from Individuals Suffering from Intestinal Disorders in Al-Mahaweel District

عزل بعض الطفيليات المعوية من أشخاص يعانون من اضطرابات معوية في مستشفى المحاويل

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Abstract:

This study was carried out on 115 stool samples of patients suffering from intestinal disorders in Al-Mahaweel district/ Babylon city, to investigate pathogenic parasites that associated with these patients. Results revealed that out of 115 cases, 25(21.7%) were associated with presence of the following pathogenic parasites: protozoa 15 cases (60%): *Entamoeba histolytica* 6(24%); *Giardia Lamblia* 4(16%), *Endolimax nana* 3(12%), and *Balantidium coli* 2(8%). Worms 10 cases (40%): *Enterobius vermicularis* 3(12%), *Ascaris lumbricoides* 3(12%), *Hymenolepis nana* 3(12%) and Hook worm 1(4%). Results also showed that significant differences were detected among patients in relation to presence of high parasitic infestations in urban areas compared to rural areas, in uneducated and educated ones. But there was no significant difference related to presence of parasites and symptoms of the intestinal disorders according to sex. Finally, results showed that high percentage of patients were smoker and married, more than those whose weren't(80%, 60%) & (20%, 32%) respectively.

الخلاصة:

أجريت هذه الدراسة على 115 عينة براز جمعت من مرضى يعانون اضطرابات معوية في مستشفى المحاويل في محافظة بابل لغرض التحري عن وجود الطفيليات المعوية عند هؤلاء المرضى. أظهرت النتائج ان مجموع 115 حالة , كانت 25 (21.7%) منها مرتبطة بوجود الطفيليات التالية: الاوالي 15 (60%): *Entamoeba histolytica* 6 (24%), *Giardia lamblia* 4 (16%), *Endolimax nana* 3 (12%), و *Balantidium coli* 2 (8%). والديدان 10 (40%): *Enterobius vermicularis* 3 (12%), *Ascaris lumbricoides* 3 (12%), *Hymenolepis nana* 3 (12%) و Hook worm 1 (4%). كما أظهرت النتائج وجود فروق معنوية في ما يتعلق بوجود نسب عالية من الطفيليات في المناطق الريفية عنها في المناطق الحضرية وكذلك بين المتعلمين وغير المتعلمين من المرضى. غير انه لم تلاحظ فروقات معنوية تتعلق بوجود الطفيلي وظهور الأعراض المرضية بين الجنسين. كذلك بينت النتائج أن نسب مئوية عالية من المرضى كانوا من المدخنين والمتزوجين أكثر من المرضى الغير مدخنين والغير متزوجين (80%, 60%)؛ (20%, 32%) على التوالي.

Introduction:

Parasites are one of the important casual agents of gastrointestinal disorders such as diarrhea, loss of weight, abdominal pain, nausea, vomiting, lack of appetite, abdominal distention and also sometime mentally related disorders. These infections are still a hygienic problem in many countries [1].

Several factors such as poor hygienic environment, poor socioeconomic statues, climate and overcrowding of people are the major causes of increasing incidence of parasitic infestations[2]. Differentiation of parasitic agents is an important step for initiation of tailored treatment and prevention of these infestations. Therefore, proper hygienic conditions in the society and diagnosis are important priorities. Epidemiological surveys carried out in different countries have shown that in summer time the rate of parasitic infestations increases because of high temperature and more usage of public water sources which are usually unsafe in places with poor sanitary condition [3].

Human infection with the intestinal parasites depends on a complex interaction between the physical environment, which influences the survival and development of the parasites stages, and the habits of the people that allow contamination or contact with these parasites [4].

The combined effects of environmentally detrimental changes in local land use and alterations in global climate disrupt the natural ecosystem and can increase the risk of transmission of parasitic

diseases to the human population [4]. So surveys on such infestations are necessary for any control strategy.

Patients and methods:

1-Patients:

One hundred fifteen patients(13 males and 12 females), from (5-50 and more)years of age for both sexes,who were suffering intestinal disorders like (diarrhea, vomiting, fever, abdominal pain, headache, nausea) were examined during a period of February through August/2008 of Al-Mahaweel Hospital in Hilla city. Stool samples were obtained from both outpatients and inpatients of this hospital.

2-Data Collection:

The information includes living conditions, regions (urban, rural), sex, age, education, martial status and smoking habit. Some information was obtained from case sheet as confirmatory diagnoses of intestinal disorders.

3-Samples Examination:

a-Macroscopically examination: It was performed by observing grossly the consistency of stool samples, presence of parasites, blood, mucus and other substances [5].

b-Microscopically examination:

1.Direct method: from each stool samples, smears suspended with normal saline and lugols iodine were examined. Two direct smears were examined from each fecal sample [5].

2.Concentration technique [formalin- ether sedimentation concentration technique].

Formalin was used for fixation and preservation of the parasite objects, and ether for removal of fats and oils [6].

5-Statistical analysis:

Chi-Square was applied to find the significant differences of the data. P- value (< 0.05) was considered significant [7].

Results:

Table(1) show the number and percentage rate of parasitic species infestations isolated from intestinal disordered patients. Results of this study showed that there was high percentage of parasitic infestations associated with patients intestinal disorders in rural regions (64%) in comparison with urban regions (36%) as shown in table(2).

In addition, the highest percentage of parasitic infestations associated with intestinal disorders was with uneducated patients (68%) in comparison with educated patients (32%) as depicted in table(3).

Table(2), show the distribution of parasitic infestations associated with intestinal disorders in patients of different age groups of both sexes. Patients who were smoker have high percentage of parasitic infestations associated with intestinal disorders(80 %) more than those who weren't (20%) as shown in table(4).

Furthermore, married patients were with high percentage of parasitic infestations associated with high percentage of parasitic infestations associated with intestinal disorders (68%) more than those who were singled as depicted in table(5).

Table-1. Distribution of infestations among intestinal disordered patients according to the type of infesting parasitic organism.

Protozoan parasites	No.	(%)	Worms	No.	(%)
<i>Entamoeba histolytica</i>	6	24	<i>Enterobius vermicularis</i>	3	12
<i>Giardia lamblia</i>	4	16	<i>Ascaris lumbricoides</i>	3	12
<i>Endolimax nana</i>	3	12	<i>Hymenolepis nana</i>	3	12
<i>Balantidium coli</i>	2	8	Hook worm	1	4
Total	15	60	Total	10	40

Table-2. Number of parasitic infestations that associated with individuals of intestinal disorders in urban and rural regions according to sex and age.

Age group	Sex	Residence		Total No.
		Urban regions	Rural regions	
5-10	M	-	-	-
	F	-	-	
11-20	M	1	1	3
	F	-	1	
21-30	M	2	3	9
	F	2	2	
31-40	M	1	1	5
	F	2	1	
41-50 And more	M	-	4	8
	F	1	3	
Sum.	-	9	16	25
Percentage	-	36%	64%	100%

M= males, F = females

$X^2=0.72$, d.f. =1, $P> 0.05$

Table-3. Number of parasitic infestations that associated with intestinal disorders according to patients educational level.

Age group	Education level		Total No.
	Educated	Non- educated	
5-10	-	-	-
11-20	2	1	3
21-30	4	5	9
31-40	1	4	5
41-50 and more	1	7	8
Sum.	8	17	25
Percentage %	32%	68%	100%

$X^2=2.56$, d.f. =1, $P> 0.05$

Table-4. Number of parasitic infestation that associated with individuals of intestinal disorders according to patients habit [smoking] .

Age group	Habits		Total No.
	Smoker	No-smoker	
5-10	-	-	-
11-20	1	2	3
21-30	7	2	9
31-40	4	1	5
41-50 and more	8	-	8
Sum.	20	5	25
Percentage %	80%	20%	100%

Table-5. Number of parasitic infestation that associated with individuals of intestinal disorders according to patients martial status [marriage].

Age group	martial status		Total No.
	Married	Non married	
5-10	-	-	-
11-20	2	1	3
21-30	6	3	9
31-40	3	2	5
41-50 and more	6	2	8
Sum.	17	8	25
Percentage %	68%	32%	100%

Table-6. Clinical signs & symptoms that associated with all parasitic infested patients.

No. of infected patients		Clinical signs & symptoms	*value
Males 13	females 12	Diarrhea	+++
		Vomiting	+++
		Fever	+++
		Abdominal pain	++
		Headache	++
		Nausea	+
		Lack of appetite	+

+++ : refere to percentage rate of 80% and more

++ : refere to percentage rate of 50-80%

+ : refere to percentage rate less than 50%

Discussion:

Studies of parasitic infestations that associated with intestinal tract disorders are not few, also this study was performed as a survey for these intestinal parasitic infestations with these disorders or symptoms among different age groups of inpatients and outpatients in Al-Mahaweel district. Few studies correlate between intestinal tract parasites and occurrence of intestinal disorders (as the present study do)[8,9,10]. But many of the previous studies were focused only on demonstration and investigation of the intestinal parasites rather than the intestinal disorders [11,12].

Results of this study showed no significant difference($p < 0.05$) between females and males, since that the number of infected females accounted 13(52%) versus 12(48%) from infected males(table,2) and this result is similar and dissimilar to the findings obtained in the previous studies related to intestinal parasitic infestations[13,14,15,16] .

Table-2 gives the distribution of parasitic infestations according to age groups. From this table it was clear that the age groups 21-30 and 41-50 and more years showed highest parasitic infestations than other groups. This results is in agreement with other studies [15,17], whereas few studies reported conflicting results [16,18,19]. In fact the establishment of parasites in the intestinal tract depends on various factors such as: host age, pH, education, economy etc...[6].

The high frequency of parasitic infestations that associated with intestinal disorders in rural regions 36% is depicted in table,2. This result is in agreement with result of other studies [4,13,20]. In general, there are many causes can increase the prevalence of parasitic infestations among individuals of rural areas, these include, poor sanitation, inadequate supply of clean water, presence of vectors and presence of animal as a reservoirs to parasites [21].

The distribution of parasitic infestations associated with intestinal disorders according to education is showed in table(3) there was more than that found in educated ones (32%), statistically it was significant. This result is in agreement with other studies [15,22]. In fact parasitic infestations can affect individuals of low educational level, and this can be attributed to poor personal hygiene and inappropriate health and nutrition education [21].

The percentage of parasitic infestations associated with intestinal disorders according to patients habit (smoking) was depicted in table (4). From this table it was clear that high percentage of parasitic infestations was found in smoker patients (80%), more than those who were not (20 %).

The results of this study are supported by the fact that the parasites can reach individuals to reduces harmful diseases through various contaminated objects and instruments, and at high vulnerability of targeted personal digestive tract [3,23]. Since smoking can leads to defect in intestine function and other body organs making high susceptibility of infestation.

Table (5) shows the percentage of parasitic infestations that associated with intestinal disorders according to patients' marital status. Patients who were married having high percentage of parasitic infestation (68%) more than those who were single (32%).

The reason for this results may be attributed to increased probability of individual contribution by parasites especially between coupled infected individuals through sexual intercourse, since several intestinal parasites can be transmitted among individuals by sex, fecal-oral, and through contamination via kissing processes [1,23].

Table(6) shows the clinical signs and symptoms that associated with all infested individuals in the field of the present study. Since diarrhea, vomiting, fever and abdominal pain symptoms are presented in high percentage of symptoms more than other signs and symptoms 80%, 50-80%, and less than 50% respectively. Several studies were showed the similar results(1,6,9,19).

Hence, it was concluded that the knowledge on good digestive health habits is very limited which stimulated this work. To gain the full cooperation of the surged subjects, we included symptoms of gastrointestinal disease and subject's habit because it is an extremely common conditions in the general population and its symptoms and complications are a frequent reason for seeking care. In addition, the recommendation is to emphasis the importance of determination of the exact meaning of the patient's complaint will help for better management, and increase public

education for seeking medical advice in situation of alarming features which are essential in the prevention of serious gastrointestinal diseases.

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