

The prevalence of intestinal parasite among sample of Iraqi peoples in Baghdad city

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Abstract

During the period from January 2010 to December 2010., a total number of 1356 fecal samples were examined from the clinic consult of Baghdad teaching hospital of both sexes, from different occupations status and different age groups ranged from one year to of age. more than 50 years

The samples were examined by direct method. results showed that 631 (46.53%) of the sample were positive with various intestinal parasites., their prevalence were **Entamoeba histolytica** 331 (24.41%) , **Giardia lamblia** 256 (18.87%) , **Enterobius vermicularis** 25 (1.84%) , **Trichomonas hominis** 12 (0.89%), **Hymenolepis nana** 5(0.38%) , **Trichuris trichora** and **Taenia saginata** 1(0.07%) respectively. Infections were higher in males (52.301%) than females (47.699 %).

الخلاصة:

أجريت الدراسة لمعرفة مدى انتشار الطفيليات المعوية في كل من الأطفال والبالغين المراجعين لمستشفى بغداد التعليمي في مدينة الطب/بغداد خلال عام ٢٠١٠ وكان عدد العينات التي فحصت ١٣٥٦ عينة براز لقد أخذت عينات البراز من هؤلاء المرضى وأجريت عليها الفحوصات المختبرية بطريقة المسحة المباشرة و فوجد أن النسبة الكلية للإصابة (٤٦,٥٣%).

وان أعلى نسبة للإصابة كانت لاميبا الزحار وبلغت ٣٣١ (٢٤,٤١%) تلتها الجيارديا اللميلية ٢٥٦ (١٨,٨٧%) وبلغت نسبة الاصابه بانواع الطفيليات الاخرى كالتالي : الدوده الدبوسيه ٢٥ (١,٨٤%)، المشعرات البشـريه ١٢ (٠,٨٩%)، الدوده الشريطية القزمة ٥ (٠,٣٨%) ، شعرية الرأس السوطية والدوده الشريطيه ١ (٠,٠٧%) على التوالي.

وكانت نسبة الاصابه في الذكور (٥٢,٣٠١%) وهذه النسبه اعلى من الاناث حيث بلغت (٤٧,٦٩٩%). واطهرت التحليل الاحصائي لهذا الاختلاف باستخدام برنامج SSPS فرق معنوي لهذا الاختلاف كان ($p < 0.05$).

Introduction

The burden of intestinal parasitic disease remains one of the greatest health problems in the developing world [1]. Intestinal parasitic infections are frequently transmitted via contaminated food and /or drinking water, but may also be spread from person to person through fecal-oral contact [2],[3]. While most infections remain asymptomatic, the clinical spectrum of disease is wide spread, ranging from mild gastrointestinal symptoms to death from disseminated infection [4]. Intestinal parasitic infections are linked to lack of, sanitation, access to safe water and improper hygiene; therefore they occur wherever there is poverty and crowding. Intestinal parasitic infections deprive the poorest of the poor of health, contributing to economic instability and social marginalization. The poor people in under developed nation experience a cycle where under nutrition and repeated infections lead to excess morbidity that can continue from generation to generation. People of all ages are affected by this cycle of prevalent parasitic infections; however, children are the most affected [3], [4] . *Entamoeba histolytica* Is an anaerobic unicellular parasite , part of the genus *Entamoeba* , The disease has a worldwide distribution with a higher prevalence in tropical and subtropical countries. *Entamoeba histolytica* is infection can lead to amoebic dysentery and some time cause extracellular lesion like amoebic liver abscess[5],[6]. *Giardia lamblia* a flagellated protozoan parasite that colonizes and reproduces in the small intestine, a parasite responsible for a contagious form of diarrhea. The parasite is most commonly transmitted through direct contact with infected feces or by eating food or drinking water contaminated by feces[7] [8] [9]. *Trichomonas hominis* a flagellated protozoan parasite that colonizes and reproduces in the small intestine.

Is cause pathogenesis in human being spreads from host to host through contamination water and food mainly with sewage water [10]. *Entrobium vermicularis* a pinworm appears as a white, small and delicate . It has a worldwide distribution ,regarded as the most common human intestinal parasite especially in children, because it spreads from host to host through contamination water and food.[11],[12] *Hymenolepis nana* a commonest human cestode or dwarf tape worm owing its wide distribution particularly in crowded areas[13]. *nana* causes Hymenolepiasis most frequently occurs in worm dry region of the developing world where exposure to human feces results in hand to mouth infection and some time can be transmitted indirectly by mite. [14].*Taenia saginata* The beef tap worm, is a cestode parasite acquired in humen through the ingestion of raw or poorly cooked meat of infected cows. These cows have been infected via the ingestion of human feces containing the eggs of the parasite. Humen act as final host for adult worm [15].*Trichuris trichiura* The human whipworm. It is third most common round worm of humans. Occurs worldwide with infection more frequent in areas with tropical weather and poor sanitation practices and among children. [16]. Iron deficiency anemia and vitamin A deficiency may result due to infection. [17]. Aim of studyThe aim of this study was to determine the prevalence of intestinal parasitic infections among. samples of Iraqi peoples in Baghdad city

Materials and Methods

The patients: This study included 1356 suspected patients of both sexes and different ages with clinically confirmed intestinal parasite in Baghdad teaching hospital.

Laboratory Examination:

A -Stool samples collection

Clean plastic cups were used for stool samples collection avoiding presence of urine or any other substances that may lead to false examination.

B- Stool samples examination

1-Macroscopical Examination

It performed by observing grossly the consistency of stool samples and weather presence of helminthes, blood ,mucous and other substances.

2-Microscopical Examination

-Direct examination

From each stool samples, smear with normal saline and lugols iodine were examined. Two direct smears were examined from each fecal sample, by preparing two clean dry microscope slides, each with normal saline and lugols iodine solution .Careful search for the eggs ,larva ,cyst and trophozoite stages of intestinal parasites.

-Statistical analysis:

For finding the differences according to (T.test) by SPSS was used for statistical analysis of these samples by statigraphic program.

Results

Results showed that out of 1356 samples, 46.53% of the sample were positive for various intestinal parasites, their prevalence were *E. histolytica* 24.41% , *G. lamblia* 18.87% , *E. vermicularis* 1.84% , *T. hominis* 0.89%, *H.nana* 0.38% , *T.trichora* and *T. saginata* 0.07% respectively.(table1)

Infections were higher in males 52.3% than in females 47.7 % (table3).

Table (1) Distribution of intestinal parasite .

Type of parasite	No. infected (positive)	% infected to total examined
<i>Entamoeba histolytica</i>	331	24.41
<i>Giardia lamblia</i>	256	18.87
<i>Enterobius vermicularis</i>	25	1.84
<i>Trichomonas hominis</i>	12	0.88
<i>Hymenolepis nana</i>	5	0.37
<i>Trichuris trichora</i>	1	0.07
<i>Taenia saginata</i>	1	0.07
Total	631	46.53

Table (2) Distribution of intestinal parasitic infection according to ages.

Age group(year)	No. infected (Positive)	Non infected (negative)	Total examined	%infected to total examined
1- <10	149	199	348	10.98
10-<20	129	151	280	9.53
20-<30	75	96	171	5.53
30- <40	101	88	189	7.44
40-<50	96	79	175	7.08
50-above	81	112	193	5.97
Total	631	725	1356	46.53

Table (3) Distribution of intestinal parasitic infection according to genders

Type of parasite	No. infected (female)	infected (female) %	No. infected (male)	infected (male) %	Total no. of infected
<i>Entamoeba histolytica</i>	145	22.979	186	29.477	331
<i>Giardia lamblia</i>	135	21.394	121	19.171	256
<i>Enterobius vermicularis</i>	12	1.901	13	2.066	25
<i>Trichomonas hominis</i>	5	0.792	7	1.109	12
<i>Hymenolepis nana</i>	3	0.475	2	0.316	5
<i>Trichuris trichora</i>	1	0.158	0	0	1
<i>Taenia saginata</i>	0	0	1	0.158	1
Total	278	47.699	344	52.301	631

Discussion:

The prevalence of intestinal parasite is a problem of great public health concern worldwide. World health organization estimates that some 3.5 billion people worldwide are affected, and 450 million ill as a result of these infections. [18] In this study, we found prevalence rate of intestinal parasitic infection among citizen of Baghdad was 46.53%. This result was lower than the result of study conducted by Al-Tae A .F.M on rural in Mosul 77.5%. [19], kut in Wasit by Abdul-Razzak 53.7% [20], Alexandria nahia by Amal 50% [21] and Hilla by Ahmed 50.5% [22] But was higher than the results found in another studies done in Najaf by Salih 37.6% [23]., Kerbala by Al-Dujaili and Niazi 21.1% [24] ,Tameem by Chapook G.O. 19.5% [25]. The differences in prevalence may be due to the nature of areas, socio-economic, climate, educational and nutritional status, population density, personal and community hygiene [3] ,[4]. Different type of intestinal parasites was detected in 1356 samples, 631 (46.53%) was positive during this retrospective study. As regard to the infection, Entamoeba histolytica, was commonest intestinal protozoa. There was difference in the prevalence of infection among the people in different age groups, sex distribution showed significant difference as well .this might be due to the chance of exposure to source of infection, in general there are no sex difference in the prevalence intestinal parasite [23],[24],[26],[27]. The incidence of infection in males (52.30%) was higher than females (47.69%). According to the results of this study, there was significant differences ($p < 0.05$) in the prevalence of intestinal parasites among different sex, ages and occupations persons of Baghdad, The This may be due to the fact that male school boys play & eating mostly outside their houses and were mostly exposed to fecal transmitted parasite Entamoeba

histolytica, was found with prevalence rate 24.41%. The infection rate of this parasite found in our study was higher than rate of infection estimate in karbala province in 1984 (0.1%) ,1986 (0.7%) and in 1988(0.5%),annual reports of Endemic Disease Institute, 1984,1986,1988 .[28], The rate was also higher than that found in Wasit 23.3% [20] Mosul 9.3% [19], Baghdad rural people 22% [29], Algeser Nahia 6.4%[30,31], Arbil 6.3% [32], Najaf 9.6% [23] ,Karbala 3.5% [24] and Tameem 7.2% [25] The cause of this rate of infection may be due to the effect of economic and nutritional status [3],[4]..

Gardia lamblia was found with prevalence rate18.87% noticed in this study, the increase in the infection rates may be due to the effect of economic and nutritional status [3],[4]. Comparing our result with the results of stool samples taken from attendants to the different Medical Centers in Karbala province in 1984, 1986, 1988 [30] which were estimated to be 5.5%, 3.9 % and 2.5% respectively. Our estimated was higher than what had been found in Mosul 6.6% [19], Baghdad 7.3%[7],Algeser Nahia 5.9% [30,31], Najaf 17.3% [23] ,Karbala 9.9% [24] ,but lower than in Tameem 39.8%[25] and in Arbil 27.2%[32]. The cause of this rate of infection was probably related to lower standards of hygiene and sanitation , also unfiltered water and person to person contact are believed to be important source of infection[33]. Trichomonas hominis was found with prevalence rate 0.89% this result lower than with the results of Wasit Province 2.9% [20]. And This parasite is asymptomatic but if present in the feces indicates presence infection in the intestine for another reasons, this might due to different habits and hygienic conditions. Entrobis vermicularis was found with prevalence rate1.84%, comparing our result it was higher than with the results of stool samples taken from attendants to the different Medical Centers in Wasit Province 0.1% [20] But lower than Al-Hilla 11.2% [22] This may be due to different habits and hygienic conditions also unfiltered water and person to person contact are believed to be important source of infection. Hymenolepis nana was found with prevalence rate0.37% this result

was lower than with the results of Wasit Province 2.8% [20] & Al-Hilla 11.2% [22]. This may be due to different habits and hygienic conditions. *Taenia sagina* was found with prevalence rate 0.07% comparing our result it shows high with the results of stool samples taken from attendants to the different medical centers in Wasit province 0.06% [22]. There are many works especially in Mousil. This may be due to different habits and hygienic conditions. There is a worldwide distribution of *Trichuris trichiura*, with about 500 million human infections.[33] *Trichuris trichura* was found with prevalence rate 0.07% noticed in this study, our result higher than with the results of stool samples taken from attendants to the different medical centers in Wasit province which were estimated to be 0.06%. [20] The differences in prevalence may be due to the nature of areas, socio-economic, climate, educational and nutritional status, population density, personal and community hygiene [3], [4].

Conclusion

The prevalence of intestinal parasite is a problem of great public health concern worldwide, The prevalence rate found in this study was high enough to merit a spotlight on it as a problem in Iraq. Health education should be increased to raise awareness of the society about such a health problem.

Recommendation

1. Further study among different regions should be applied to illustrate the importance of different environmental conditions on the prevalence of the infection.
2. The study had clarified the need for the proper control measures which might be essential to reduce the incidence of infection in the community. We believe that public education, improving sanitation condition of under developed areas/communities, community involvement, and supporting evidence-base programs are the major keys to success in preventing the spread of intestinal parasiticinfections in Iraq.

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