PREVALENCE OF INTESTINAL PARASITIC INFECTIONS AMONG CHILDREN IN DIYALA PROVINCE

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ABSTRACT

Intestinal protozoan parasites consider as important parasite that infect human, and there are high infection rate in human in word. To detect distribution of intestinal parasites from children with diarrhea in Baqubah / Diyala province. This study was conducted in the Al-Batool Teaching Hospital in Diyala province, from August 2017 to December 2017. The patients suffering from diarrhea with different gastrointestinal complaints were included in the present study, the age range was between 2 months to 18 years. Stool samples were collected from each patients use for: Microscopic examination.

The Microscopy detected 45 cases of parasitic infection among 120 diarrheal child, the overall prevalence of infection was 37.5%. The highest prevalence (71.4%) was recorded among the 1-5 years age group with 26 infection in males was higher than in females 19. Overall, protozoa infections (73%) were higher than the helminthes infections (26.9%). *Entamoeba histolytica* (55.5%) and *Giardia lamblia* (17.7%) were the commonest intestinal protozoan identified, *Enterobius vermicularis* and *Ascaris lumbricoides* and *Taenia spp*. were the most common helminths detected with a prevalence rate of 13.3% and 8.8%,and 4.4% respectively.

The rate of abdominal pain was the most frequency clinical aspect of parasitic infections which appeared in 18 (40%) cases, the highest incidence was in August with 15 cases, while with only 2 cases in December. Most common co-infection is between giardiasis cases and *E. histolytica/ dispar* with 5 cases (11.1%), while 2 (4.4%) cases of co-infection among giardiasis with *E. vermicularis*.

Key words: Intestinal parasites, parasitic infection, *Entamoeba histolytica/ dispar*.

INTRODUCTION

Intestinal parasites constitute a significant public health problem, particularly in tropical and subtropical countries where adequate water and sanitation are lacking (Ali and Mohammed, 2010). It is estimated that about 3.5 billion people are affected in developing countries, the majority of which are children (450 million, nearly 13%). In these developing countries, over 80% of

all deaths are attributed to infectious with parasitic diseases (Corrales *et al*., 2006).

The intestinal parasites most prevalent in the world generally and the level of the third world in particular, where its widespread to be affected the climatic and environmental conditions such as heat, in addition to economic conditions and social conditions such as poverty lack of clean water supply and the low level of health services increases the incidence of intestinal parasites and reduce the chances of control or eradication of diseases they cause (Lebbad and Svared, 2005).

Amoebiasis is still a big problem of human civilization at the beginning of 21st century, so every study in this field is valuable. Amoebiasis is caused by *E. histolytica*, a parasitic protozoan, which infects predominately human and other primates. *E. histolytica* causes amoebic colitis and amoebic dysentery, resulting in 100,000 deaths annually (Al-Sabbawi, 2007), *E. histolytica* not only causes severe diarrhea but can cause abscesses in the intestine, liver, lung and other organs and it ranks third on the list of parasitic causes of death worldwide behind malaria and schistosomiasis. Giardiasis is an infectious disease that present all over the world but spread more in the third world countries like Iraq, where is bad sanitary and living conditions. It is a dangerous disease that affect children and adults and lead to malabsorbtion syndrome and weight loss in the infected persons (Chin, 2000). *Giardia lamblia* is a waterborne protozoan parasite and a common cause of intestinal disease in all parts of the world (Mohamed *et al*., 2009). Both *G. lambila* and *E. histolytica* are frequently transmitted by contaminated food and/or drinking water, as well as potentially spread from person to person through fecal–oral contact (Damen *et al*., 2011). There is high prevalence of intestinal parasite throughout the world; The most morbidity and mortality of infections found in Africa, Asia and middle south America (Hussein, 2010). However about 10% from these cases were symptomatic and the remainder cases were asymptomatic. The infection differs from country to other, the severity of infection depending on strain virulence of parasites, type of host, alimental condition of host, host immunity, presence of normal flora in intestine and presence other intestinal infections. The rate of infection with intestinal parasites was (1.22%) of (1028640) stool specimens collected from all Iraqi governorates, prevalence of infection was as follows: Basra (59.98%), Sulaimani (26.28%), Najaf (24.89%), Duhok (20.10%), Nassiryah (12.02%), and Anbar (7.08%) (reference). In area with low hygienic condition there are more infection with intestinal parasite socioeconomic and

many studies reports these parasites in low are status area (Kia *et al.*, 2008). It is impossible to give an accurate estimate of the economic importance of parasitic disease because it varies so greatly between countries and between regions (Markell, 2006).

This study was carried out to:

1- determine the prevalence of intestinal parasites in in Baqubah city/Diyala province.

2- determine the prevalence of intestinal parasites according to the type of parasites and relate such infections with age, sex, clinical symptoms and month.

MATERIALS AND METHODS

A total of 120 patients presenting with different gasterointestinal symptoms to the Al-Batool Teaching Hospital from August to the December 2017. The age of the patients from less than 1 year to 18 years, from various socio-economic status had been examined for intestinal parasites in their stool by using direct smear. A detailed questionnaire was filled with all necessary information's for each patient. Stool samples: Each stool samples were placed in dry, sterile and clean and well blocked plastic container with top cover. Moreover, container was marked with name and number of each patient. Each fresh stool samples were examined under light microscopic with normal saline and Logules iodine, smears were prepared by add one drop of saline and the other with Logules iodine on clean slides and take small amount from stool by wood sticks from location when found blood and pus, and thoroughly emulsify the stool in saline and logulas iodine, thereafter each slide was covered with a cover slip. Slides were examined fully under the low (X10) and high (X40) powers of microscope.

The results were presented in numbers, percentages and using chi-square as a test of significance (Allison, 2012). .

RESULTS AND DISCUSSION

Table 1 shows that the rate of intestinal infection, for protozoa were (73.3%) significantly more than helminthes with (26.7%). *E. histolytica*/ *dispar* (55.5%), *G. lamblia* (17.7%) were the most common infection from total number of infected samples. The infection rate with helminthes, including *E. vermicularis*, which showed the highest rate (13.3%). However, *E. histolytica*, *Ascaris lumbricoides* and *Taenia spp*. were more frequent in females than males, while the prevalence of other parasites was higher in males than females, while there is no significant difference in prevalence of intestinal parasite between the two sexes group, being 26/45 (42.2%) in males and 19/45 (57.8%) in females. Epidemiological surveys on the intestinal parasitic infections among children are

important in Diyala, since they reflect the sanitary conditions of city and generate data that are essential to formulate strategies for the control of intestinal parasitic infections among children.

The protozoal infections widespread may be due to the easy transmission routes of these intestinal parasites happens via fecal- oral route, either directly from person-to-person or indirectly by eating or drinking fecally contaminated food and water, at the same time the simple life cycle of protozoan that not require intermediate host. Beside, many of these protozoans are usually inhabit the human intestine and became pathogenic with the impairment of immune system (Dash *et al*., 2010). The result of the study compatible or closed with study was conducted in Thi-Qar Province that found protozoan more than helminthes infections (Al-Mosawi, 2010), also another studies in Ouagadougou, Burkina Faso, show protozoan (95.93%) more than helminthes (2.25%) (Karou *et al*., 2011) and in Nepal that found protozoan more than helminthes (20.61% and 10.30% respectively (Rai *et al.*, 2017). Also other study in Senegal, found protozoan (29.6%) more than helminthes (0.8%) (Tine *et al*., 2018).

The most prevalent parasites were *E. histolytica\dispar* and *G. lamblia* this may be due to the fact that these protozoan cysts are highly resistant to chlorine disinfection, beside their small size (range 1–17 μm) enables them to penetrate water treatment systems and cause waterborne disease even following the consumption of treated drinking-water, at the same time cysts of *G. lamblia and E. histolytica\dispar* resistance to high temperature degree may be more than 50 ^{o}C and to low temperature and humidity (-1 ^{o}C) that mean can transmission through any season and soil (Graczyk *et al*., 2005). Similar researches involved the same two gastrointestinal parasites or/with other relevant ones carried out in parts of the Mediterranean and developing world, which are classified as over populated, to their prevalence in these countries, Pakistan (Ejaz *et al*., 2011), Portugal (Julio *et al.*, 2012), and Ghana (Nkrumah and Nguah, 2011), as well as in parts of Iraq, like Tikrit (Nassir, 2010) and Karbala (Al-Musawi, 2006). However, Among the intestinal helminthes, *E. vermicularis and A. lumbricoides* were the most common being, detected with a rate of 13.3% and 8.8%, respectively. In contrast to protozoan infection. The prevalence of helminthes infection in our study was low (26.7%). Similar observation have been made in studies performed in the other countries (Bazzaz and Ahmed, 2016 ; Heyworth, 2016). The reason for this may be due to unfavorable ecological environment and other prevailing socio-cultural factors that influence helminthes survival and transmission (Auerbach, 2012). Both gender, males and females in various ages,

were exposed to chance of infection because all of them were living under the same climates and conditions of disease, but the result in present study found that more males were infected than females, this result obtained elsewhere in Baghdad (Stark *et al*., 2007) but were higher in Mosul city. These variations might be due to physiological, behavioral as well as immune differences between genders, endocrine activity as male bodies are more tolerant than those of females (Fattuhi *et al*., 2008).

Table 1. Distribution of intestinal parasite isolated according to gender

Parasites	Gender		Total
	Male	Female	
Protozoa:			
Entamoeba histolytica /dispar	14(53.8)	11(57.8)	25(55.5)
Giardia lamblia	5(19.2)	3(15.7)	8(17.7)
Total protozoal infection	19(73)	14(73.6)	33(73.3)
Helminths:			
Entrobius vermicularis eggs	4(15.3)	2(10.5)	6(13.3)
Ascaris lumbricoides eggs	2(7.6)	2(10.5)	4(8.8)
Taenia spp. Eggs	1(3.8)	1(5.2)	2(4.4)
Total helminthes infection	7(26.9)	5(26.3)	12(26.7)
Total	26(100)	19(100)	45(100)
P- value	0.1400 NS		
P: Probability, NS: Not significant			

Table 2 shows that the prevalence of intestinal parasites is the highest in 1-5 years age group 19/45, followed by age group less than 1 year and 6-11 years (15 and 7) respectively. Whereas age group of 12-18 year old revealing the lowest infection with 4 cases.

Table 2. Distribution of intestinal parasite isolated according to age

Parasites	Age group (years)				Total
	<1	1-5	6-11	12-18	
Protozoa:					
E. histolytica/dispar	12(80)	8(42.1)	3(42.8)	2(50)	25(55.5)
G. lamblia	2(13.3)	3(15.7)	2(28.5)	1(25)	8(17.7)
Total protozoal infection	14(93.3)	11(57.8)	5(71.4)	3(75)	33(73.3)
Helminths:					
E. vermicularis eggs	-	4(21)	1(14.2)	1(25)	6(13.3)
A. lumbricoides eggs	1(6.6)	2(10.5)	1(14.2)	-	4(8.8)
Taenia spp.	-	2(10.5)	-	-	2(4.4)
Total helminthes infection	1(6.6)	8(42.1)	2(28.5)	1(25)	12(26.7)
Total	15(100)	19(100)	7(100)	4(100)	45(100)
P- value	0.0006*				

P: Probability, *=Highly significant (P≤ 0.001).

Statistical analysis showed that there were highly significant differences ($p \leq 0.001$) in distribution of intestinal parasites according to groups. The most affected group of patients with intestinal parasites, those with 1-5 years old 19/45, otherwise the group with 12-18 year the less affected group. This is a clear indication of hygiene related cause where children less 5 years are more susceptible to be exposed to unhealthy food than 12-18 or less developed immune system (Zahida *et al*., 2010).

Overall, considering single and double infection, the commonest parasite was *E. histolytica*/*dispar*, which was presented in (42.2%) of the examined sample, the infection with a single parasite was more common (75.6%) than that with double parasites are shown in Table 3. The commonest double infection was between *E. histolytica*/*dispar* and *G. lamblia* (11.1%), followed by *E. histolytica*/*dispar* and *E. vermicularis* (8.8%), while 2 (4.4%) cases of co-infection among giardiasis with *E. vermicularis*. The main double infection were between *E. histolytica/dispar* and *G. lamblia* of total mixed infection, followed by that between *E. histolytica/dispar* and *E. vermiculais*. This is related to the unhygienic habits of children and this may indicated that the modes of transmission and epidemiology patterns of these parasites may play a role in their presence together (Farrar *et al*., 2013). Indeed, the detection of parasitic co-infection can be considered the true first step in patient's recovery, as the treatment of only one parasite and neglect the other may lead to the failure of treatment (Al-Obaidi, 2014).

Table 3. Distribution of intestinal parasites (single and double) according to type of parasite

Parasites	Number positive	Percentage%
Single infection		
E. histolytica/dispar	19	42.2
G. lamblia	5	11.1
A. lumbricoides	4	8.8
E. vermicularis	4	8.8
Taenia spp.	2	4.4
Total	34	75.6
Double infection		
E. histolytica+G. lamblia	5	11.1
E. histolytica+E. vermiculais	4	8.8
G. lamblia+E. vermiculais	2	4.4
Total	11	25.4
Total of infected samples	45	100

Table 4 show that the rate of Abdominal pain was the most prevalent clinical aspect of intestinal infections which appeared in 18 (40%) cases. While patients suffering from weight loss 11 (24.4%), fever was found in 10 (22.2%) cases, Vomiting in 8 (17.7%) patients, Flatulence in 6 (13.3%) patients, Fatigue and Anorexia were found in 5 (11.1%) cases, significant differences appeared in the distribution of clinical aspects among patients at $p \leq 0.05$. The main observation from this study is the co-existence of high distribution of abdominal pain of patients with diarrhea, The other common symptoms observed in the patients were weight loss, fever, vomiting, flatulence, anorexia and fatigue. All or some of these clinical aspects have been mentioned in study about parasitic infections with various incidence rates in each study. These differences may be related to the differences in study area, selected diarrheal patients, Host factors such as immune status, nutritional status and age, as well as differences in virulence and pathogenesis of parasitic infections (Lujan and Svard, 2011).

Table 4. Frequency of clinical presentation of infected patients

Clinical presentations	Number of patients	Percentage (%)
Abdominal pain	18	40
Weight loss	11	24.4
Flatulence	6	13.3
Fatigue	5	11.1
Anorexia	5	11.1
Fever	10	22.2
Vomiting	8	17.7
p- value ≤ 0.05		

Out of 45 positive diarrheal stools collected with intestinal parasites, 37.8% of the specimens were Watery/liquid, 35.6% were bloody and 26.7% were oil fatty (Table 5). Association was detected between these types of diarrhea and some types of parasitic infections, like *G. lamblia* with oil fatty (75%), *E. histolytica/ dispar* with bloody (56%) and *A. lumbricoides* with watery/liquid diarrhea (75%). Association was found between the types of diarrhea and some kinds of parasitic infections, like *G. lamblia* with oil fatty, this may be due to the malabsorption of fats, fat-soluble and vitamins may occur. When daily losses of fat in feces are greater than 7 grams, this condition is classified as steatorrhea (Hall, 1994). *E. histolytica/dispar* association with bloody diarrhea, This may be due to the damage of the epithelial cell layer attracts human immune cells and these in turn can be lysed by the trophozoite, which releases the immune cell's own lytic enzymes into the surrounding tissue, creating a kind of chain reaction

and leading to tissue destruction which can also involve blood vessels leading to bloody diarrhea or amebic dysentery.

The high rate in present study of infection in watery/ liquid diarrhea fecal sample may be indicate to acute phase of disease or may be related to large number of parasites especially trophozoite forms which lead to diarrhea. However, the infection with these parasites usually present with mild to abundant watery diarrhea, with or without mucous, rarely with blood or leukocytes (Farthing, 2000).

Table 5. Distribution of intestinal parasites according to types of diarrhea

Parasites	Types of diarrhea						Total
	Watery/liquid	%	Bloody	%	Oil fatty	%	
E.histolytica / dispar	7	28	14	56	4	16	25
G. lamblia	2	25	0	0.0	6	75	8
E. vermicularis	4	66.7	2	33.3	0	0.0	6
A. lumbricoides	3	75	0	0.0	1	25	4
Taenia spp.	1	50	0	0.0	1	50	2
Total	17	37.8	16	35.6	12	26.7	45

The monthly distribution of parasitic infections gradually decreased from maximum in August to a minimum in December with only 2 cases, as showing in table 6.

Table 6. Distribution of intestinal parasitic infections cases by months

Month	Number Examined	Positive cases	Percentage (%)
August	22	15	68.2
September	26	11	42.3
October	36	9	25.0
November	24	8	33.3
December	12	2	16.7
Total	120	45	37.5
P-value	0.007**		
** Significant ($p \leq 0.05$)			

Seasonal factor has effects on the prevalence of intestinal parasites infection rate in Baqubah city during the present study, The epidemiology of parasitic infections are associated with climate, the present study revealed the higher incidence in high to moderate temperature months which may be due to the fact that Iraq is one of the countries that have long hot dry summer and short moderately cold winter, hot and dry weather encourages parasitic infection by high consumption of drinking water contaminated with parasites mainly in water system using inadequately treated, as the transmission of parasites through

drinking water was well document (Karanis *et al.*, 2007). Also the population characteristics play a role, such as swimming in rivers and lakes in hot weather increases the susceptibility for giardiasis (Stuart *et al*., 2003).

CONCLUSION

1. The prevalence of intestinal parasites in Baquba city is high, *E. histolytica*/*dispar* is the common parasitic in the region (55.5%).
2. High rate of intestinal parasites infection were found in the watery/liquid diarrhea. Therefore, screening of the children for parasites should be an essential part of health care and prompt preventive measures should be taken for the eradication of these infection, which should include public health education, clean water supply prompting personal hygiene and periodic deworming of the children.

REFERENCE

Ali S. A., L. O. Mohammed. 2010. Prevalence of intestinal parasite among children in Sulaimani city. *J. Duhok Univ.*, 13(1): 94-98.

Allison, P D. 2012. Logistic regression using SAS: Theory and application. SAS

Al-Mosawi, K. A. H., W. J. M. Al-Yazi and H. K. Al-Masuoodi. 2006. Studies on Parasitic Diarrhea Causes in Children at Karbala City. *Scientific Journal of Karabla University*, 4: 17-30.

Al-Mosawi, R. 2016. Detection of Intestinal Parasitic among People Infection with Diarrhea in Al-Fhood District in Thi-Qar Province, Iraq. *IJSBAR*., 28(1): 180-185.

Al-Obaidi, H. M. A. 2014. Identification of giardiasis genotypes and co-infections in patients with diarrhea in some regions of Baghdad. Ph.D. Thesis, Sci. Coll. Baghdad Univ.

Al-Sabbawi, M. H. 2007. Giardiasis in the Third World Countries. *J. of Chin. Clin. Med.*, 2: 539-540.

Auerbach, P. S. 2012. Wilderness Medicine. 6th Edition, Elsevier/Mosby, Philadelphia, Chapter 68.

Bazzaz, A. A. and N. A. Ahmad. 2016. Prevalence of some parasitic infectious diseases within Kerkuk City for Years 2009-2014. *European Journal of Pharmaceutical and Medical Research*, 3: 13-19.

Chin, J. 2000. Control of Communicable Diseases Manual. 17th ed. American Public Health Association Washington DC.

Corrales, L.F., R. Izurieta and C. L. Moe. 2006. Association between intestinal parasitic infections and type of sanitation system in rural El Salvador. *Trop Med Int Health*, 11(12): 1821-1831.

Damen, J. G., J. Luka, E. I. Biwan and M. Lugos. 2010. Prevalence of intestinal parasites among pupils in Rural North Eastern, Nigeria. *Niger. Med. J.*, 52(1): 4-6.

Dash, N, M. Al-Zarouni, K. Anwar and D. Panigrahi. 2010. Prevalence of intestinal parasitic infections in Sharjah, United Arab Emirates. Human Parasitic Dis., 2: 21.

Ejaz, M., G. Murtaza, M. Ahmad, S. A. Khan, I. Hussain, Q. Najam -ul-Saqib, M. H. Hassan Bin-Asad, A. Wasim and K. Farzana. 2011. Determination of the Prevalence of *Entamoeba histolytica* in Human at a Private Fertilizer Company Hospital in Pakistan using Microscopic Technique. *African Journal of Microbiology Research*, 5: 149-152.

Farrar, J., P. Hotez, T. Junghanss, G. Kang, D. Lalloo and N. J. White. 2013. Manson's Tropical Diseases. Elsevier Health Sciences,pp: 664-671.

Farthing, M. J. 2002. Clinical aspects of human cryptosporidiosis. *Contrib. Microbiol*., 6: 5074.

Fattuhi, Z. I., S. S. Hussein and N. Mahfudh. 2008. Studies of Diarrhea Causing Intestinal Parasites and Some Effects in Children at Naynawa City. *Scientific Rafidain Journal*, 19: 37-50.

Graczyk, T. K., C. K. Shiff, L. Tamang, F. Munsaka, A. M. Beitin and W. J. Moss. 2005. The association of *Blastocystis hominis and Endolimax nana* with diarrheal stools in Zambian school-age children. *Parasitol.* Res., 98(1): 38.

Hall, A. 1994. *Giardia* infections: epidemiology and nutritional consequences. In: *Giardia*: From molecules to disease, R. C. A. Thompson, J. A. Reynoldson and A. J. Lymbery, eds., Cab International, Wallingford, U.K., pp. 251-279.

Heyworth, M. F. 2016. *Giardia duodenalis* genetic assemblages and hosts. *Parasite*, 23(13):1-5.

Hussein, J. N. 2010. Prevalence of intestinal parasites among children in various localities of Duhok province. Journal of Duhok University, 13(1):49-98.

Júlio, C., A. Vilares, M. Oleastro, I. Ferreira, S. Gomes, L. Monteiro, B. Nunes, R. Tenreiro and H. Ângelo. 2012. Prevalence and Risk Factors for *Giardia duodenalis* Infection among Children: A Case Study in Portugal. *Parasites and Vectors*, 5: 22-30.

Karanis, P., C. Kourenti and H. Smith. 2007. Waterborne transmission of protozoan parasites: a worldwide review of outbreaks and lessons learnt. *J. of Water and Health*, 5(1): 1-38.

Karou, S. D., D. Sanou, D. Ouermi, S. Pignatelli, V. Pietra, R. Moret and J. Simpore. 2011. Enteric parasites prevalence at Saint Camille medical center in Ouagadougou, Burkina Faso. *Asian Pacific J. Trop. Med.,* 4(5): 401-403.

Kia, E. B., M. Hosseini, M. R. Nilforoushan, A. R. Meamar and M. Rezaeian. 2008. Study of intestinal protozoan parasites in rural inhabitants of Mazandaran Province, Northern Iran. *Iranian J. Parasitol* 3(1): 21-25.

Lebbad, M. and S. G. Svard. 2005. PCR differentiation of *Entamoeba histolytica* and *Entamoeba dispar* from patients with amoeba infection initially diagnosed by microscopy. *Scand. J. Infect. Dis.*, 37: 680-685.

Luján, H. D. and S. Svärd (Eds.). 2011. Giardia: A model organism. Springer Science and Business Media.

Markell, E. K. 2006. Examinations of stool specimens. In: Markell EK and Voge M (Eds.) Medical Parasitology. Saunders (9th ed.), Missouri, USA pp. 480

Mohamed, M. M., A. I. Ahmed and Salah. 2009. Frequency of intestinal parasitic infections among displaced children in Kassala Town. *Khartoum Medical Journal*, 2(1): 175-177.

Nassir, A. M. A. 2010. Diagnostic epidemiologic study of some species of *Entamoeba* using PCR in Tikrit. M. Sc. Thesis, Faculty of Sciences, University of Tikrit.

Nkrumah, B. and S. B. Nguah. 2011. *Giardia lamblia*: Amajor parasitic cause of childhood diarrhoea in patients attending a District Hospital in Ghana. *Parasites and Vectors*, 4: 163-169.

Rai, L., B. Saud, G. Paudel and G. Dhungana. 2017. Prevalence of intestinal parasitic infection among rural area school children of Lokhim VDC, Nepal. *J. Microbiol. Exp.*, 4(1): 00102.

Stark, D., S. van Hal, D. Marriott, J. Ellis and J. Harkness. 2007. Irritable Bowel Syndrome: A Review on the Role of Intestinal Protozoa and the Importance of Their.

Stuart, J. M., H. J. Orr, F. G. Warburton, S. Jeyakanth, C. Pugh, I. Morris and G. Nichols. 2003. Risk factors for sporadic giardiasis: a case-control study in southwestern England. Emerging Infecti. Dis., 9(2): 229-233.

Tine, R. C., T. Dieng, K. Sylla, D. Sow, S. Lelo, D. Ngom and O. Gaye. 2018. Low prevalence of soil transmitted helminths among children in rural areas in Senegal: A cross sectional survey. *Journal of Parasitol. Vect. Biol.*, 10(1): 19-25.

Zahida, T., K. Shabana and M. H. Lashari. 2010. Prevalence of *Entamoeba histolytica* in Humans. *Pakistani Journal of Pharmceutical Science*, 23: 344-348

انتشار الاصابات الطفيلية المعوية بين الأطفال في محافظة ديالى

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المستخلص

الطفيليات المعوية من الطفيليات المهمة التي تصيب الإنسان، وكانت نسبة الاصابات مرتفعة في الإنسان بالعالم. للكشف عن توزيع الطفيليات المعوية بين الأطفال المصابين بالإسهال في مدينة بعقوبة/ محافظة ديالى، أجريت هذه الدراسة في مستشفى البتول التعليمي في مدينة بعقوبة، من آب (أغسطس) 2017 إلى كانون الأول (ديسمبر) 2017. تضمنت هذه الدراسة المرضى الذين يعانون من الإسهال مع مختلف الاعراض المعوية، وكان العمر يتراوح بين شهرين إلى 18 سنة. تم جمع عينات البراز من كل مريض من أجل الفحص المجهري.

كشف الفحص المجهري 45 حالة من حالات العدوى الطفيلية بين 120 طفلا مصابا بالإسهال، وبلغ معدل انتشار العدوى عموما 37.5%. سجلت أعلى نسبة انتشار (71.4%) بين الفئة العمرية 1-5 سنوات فقد كان هناك 26 حالة إصابة بالذكور أعلى من الإناث 19. كانت العدوى بالاوليات المعوية (73%) أعلى من العدوى بالديدان المعوية (26.9%)، وكانت اميبا الزحار (55.5%) والجيارديا اللمبلية (17.7%) من أكثر أنواع الاوليات المعوية التي تم تحديدها، و *Enterobius vermicularis* و*Ascaris lumbricoides* و *Taenia spp*، وكانت الديدان الأكثر شيوعا المكتشفة بمعدل انتشار 13.3% و 8.8% و 4.4% على التوالي.

كان معدل آلام البطن أكثر الاعراض السريرية تكراراً للعدوى الطفيلية التي ظهرت في 18 حالة (40%)، وكانت أعلى نسبة في شهر آب مع 15 حالة، بينما كانت هناك حالتان فقط في شهر كانون الأول. العدوى المشتركة الأكثر شيوعا هي بين حالات الجيارديا واميبا الزحار مع 5 حالات (11.1%)، في حين كانت حالات العدوى المشتركة بين الجيارديا مع الدودة الدبوسية 2 (4.4%).

الكلمات المفتاحية: الطفيليات المعوية، الأطفال، محافظة ديالى.