Epidemiology of *Entamoeba histolytica* , *Giardia lamblia* and *Blastocystis hominis* in Basra Province \Iraq

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Abstract

To evaluate the intestinal parasites in (auditors) reviewers in Basra province. The present study recorded (188) persons infected with Entamoeba histolytica infection (21.19%) , Giardia lamblia (61) cases (6.8%), The highest infection with Entamoebahistolyticain May (27) cases ,Giardia lamblia in December (10) cases ,The lowest infection with Entamoeba histolytica in February.(7) cases, Giardia lamblia (2) cases in August .the number infected with the parasite Entamoeba histolytica (100) male and 88 , 30male and 31 female infected with Giardia lamblia ;17 and 19 of male and female. The highest infection with Entamoeba histolytica in male (14) cases in May ,6 male infected with Giardia

The lowest infection with *Entamoeba histolytica*in male (3) cases in February, The highest infection with Entamoeba histolytica in female (13) cases in May , 4 cases infected with Giardia lamblia in both September, November and December The highest infection with Entamoeba histolytica (52) cases at age (21-30) years, with Giardia lamblia (14) cases at age (11- 20) years, with Blastocystis hominis (7) cases at both age (1-5) years and (21-30) years. The lowest infection with Entamoeba histolytica (12) cases at age (1-5) years , Giardia lamblia (5) cases at age (1-5) years , Blastocystis hominis (5) cases at both age (6- 10) years and (41- 60 over) years.The study was conducted in Basra region between2nd January and31st December2019 .

Keywords: *Entamoeba, Giardia, Blastocystis, Epidemoliogy, Basra*

Introduction

Infection with intestinal pathogenic parasites in the world is still existing a serious aberration on public health [1,2].One fourth of known human infectious disease are caused by the parasites [1 , 2].Signed , it is fated number of people infected with intestinal parasites 3.5 billion people in the world. Protozoa and helminthes of intestinal parasites,pathogenic bacteria and virus are bassicaly causes of diarrhea disease andmortality and morbidity inchildren'sin developing countries[3,4].

*Giardia lamblia*andBlastocystis hominis in (auditors) reviewers patient who attained to consultation clinic of General hospital of Basra – province / Iraq ,during period from 2ndJanuary to 31stDecember,2019.

Patients and methods:

MStool samples were collected from 887 Auditors patient s attended in the Basra General hospital to parasitic diagnosis. Each sample was examined by direct wet mount microscopic examination using both normal saline and Lugol's iodine preparation.

The study was conducted in Basra region between2nd January and31st December 2019.

Results

As (887) stool samples were examined of auditors in general Basra hospital. The present study recorded (188) persons infected with *Entamoeba histolytica* infection percentage(21.19) table1andfig1 , Giardia lamblia (61) cases (6.8%) andBlastocystis hominis 36 persons (infection percentage (4.05).

Table 1: Entamoeba histolytica, *Giardia lamblia* and Blastocystis hominis representation in positive stool and percentage of infection

Parasite	No.\887	P%
Entamoeba histolytica	188	21.19
Giardia lamblia	61	6.8
Blastocystis hominis	36	4.05

Table 2 show frequency monthly distribution of *Entamoeba histolytica* ,*Giardia lamblia*and*Blastocystis hominis*. The highest infection with Entamoeba histolytica in May (27) cases ,Giardia lamblia in December (10) cases while *Blastocystis hominis*in September(7) cases . The lowest infection with Entamoeba histolytica in February.(7) cases , Giardia lamblia(2) cases in August and one case ofBlastocystis hominis infection in July and August .

Table 2 : frequency monthly distribution of Entamoeba histolytica ,Giardia lambliaandBlastocystis hominis

B.h	G.l	E. h	Month
4	7	9	Jan.
3	3	7	Feb.
2	7	22	Mar.
2	3	14	Apr.
2	4	27	May
4	4	21	Jun.
1	4	10	Jul.
1	2	13	Aug.
7	7	11	Sep.
3	5	15	Oct.
2	5	17	Nov.
5	10	22	Dec.
36	61	188	Total

Table 3 show representation of*Entamoeba histolytica* ,Giardia lambliaandBlastocystis hominis dependence on sexes , the number infected with the parasite Entamoeba histolytica (100) male and 88 , 30 male and 31 female infected with Giardia lamblia ;17 and 19 of male and female respectively infected with Blastocystis hominis. The highest infection with *Entamoeba histolytica* in male (14) cases in May ,6 male infected with Giardia lamblia in December while 4 cases infected with Blastocystis hominis in September. The lowest infection with *Entamoeba histolytica* in male (3) cases in February, one case was record infection with Giardia lamblia in both April , July and November. The highest infection with *Entamoeba histolytica* in female (13) cases in May , 4 cases infected with Giardia lamblia in both September , November and December while 3 cases infected with Blastocystis hominis in December .The lowest infection with Entamoeba histolytica in female (4) cases in both January ,February , July and September , one case infected with Giardia lamblia in February ,June and August while one case infected with Blastocystis hominis in both March , April, May ,July , August ,October and November .

Table 3 Representation Entamoeba histolytica ,*Giardia lamblia*andBlastocystis hominis dependence on sexes

Month	E	h	G	I	B	h
	M	F	M	F	M	F
Jau.	5	4	4	3	2	2
Feb.	3	4	2	1	1	2
Mar	10	12	4	3	1	1
Apr.	8	6	1	2	1	1
May	14	13	2	2	1	1
Jun.	11	10	3	1	2	2
Jul.	6	4	1	3	0	1
Aug.	6	7	1	1	0	1
Sep.	7	4	3	4	4	3
Oct.	8	7	2	3	2	1
Nov..	10	7	1	4	1	1
Dec.	12	10	6	4	2	3
	100	88	30	31	17	19

Table 4 shows Prevalence of Entamoeba histolytica ,Giardia lamblia andBlastocystis hominis according to age categories , the highest infection with Entamoeba histolytica (52)cases at age (21-30) years , with Giardia lamblia (14) cases at age (11-20) years, with Blastocystis hominis (7) cases atboth age (1-5) years (21-30) years. The lowest infection with Entamoeba histolytica (12) cases at age (1-5) years , Giardia lamblia (5) cases at age (1-5) years , Blastocystis hominis (5) cases at both age (6- 10) years and (41- 60 over) years.

Table 4 Prevalence of Entamoeba histolytica ,Giardia lamblia andBlastocystis hominisaccording to age categories

Parasite	1-5 y	6-10 y	11-20 y	21-30y	31-40 y	41-60 over	Total
E.h	12	22	30	52	48	24	188
Gl	5	11	14	13	11	7	61
B.h	7	5	6	7	6	5	36

Discussion

The parasitic infections are often paired with poor sanitary habits, lack of access to safe water, personal and community hygiene. The spread of parasitic infection can change from one area to another[5,6].The spread of parasitic infection can change from one area to another [5,6]. Infection with intestinal parasitic is relatively among Iraqi people [5].The prevalence of intestinal parasite depending on degree of personal community hygiene , sanitation and environments factors [10] .

The present study recorded the percentage of infection with Entamoeba histolytica 188 cases (21.19%) similar that in Baghdad (21.3%)[8] ,while 15.3% [5] . An estimated about 10 % of world population

infected with *Entamoeb histolytica* and with estimated 50-100 thousand death person each year [5 ,9], high prevalence of deaths rate due to amoebic injury In the Asia , United States especially in California and Texas, Mexico ,Latin America[5,9]. The main route of infection with *Entamoeba histolytica*is the fecal-oral route, and another route is abnormal sexual intercourse between males homosexual relations in people And with AIDS the likelihood of contracting this parasite is greater[5,9] .

The present study recorded the percentage infection with Giardia lamblia(6.8%) similar that in [9] (5.94%) while [8]and [5] were record 13.6% and 30.1% respectively .Giardia lamblia is most commonly isolated intestinal parasites worldwide[5,9] . The infection of 20 _ 40 %is indicated to the developing countries especially in the children's[5 ,9],in developed countries, the incidence ofgiardiasisis stated from 2 – 5% [5,9].Some studies are indicated the presence of a tumormass in the pancreatic tissue and gallbladder associated infection with Giardia lamblia. [5,9] The presence of gallbladderandpancreatic cancer and giardiasis is not clear[5,9] .

The current study recorded percentage of infection of parasite Blastocystis hominis (4.05%) while (7.01) in [9] , in Kuwait 2%, Napal 54% and New Guinea. [5,9,10] The highest infection in present study with Blastocystis hominis at age (1-5)years and (21-30)years and lowest incident at age (6-10) years while in[9]the highest infection at age (20-30)years and lowest of age (6-10) years . Infection with Blastocystis hominis leads to diarrhoea, abdominal pain, fatigue, constipation, flatulence, chronic gastrointestinal illnesses (irritable bowel syndrome(IBS) and skin rash [11,12].Unclear the life cycle and pathology of Blastocystis hominis[13]. Some studies referred to persons 30-50 years more infected with Blastocystis [14] .The main road of this parasite faecal–oral route.[15,16]

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References

1- Alum A , Septemerh A R., Rubino B and Khalid B. The global war against intestinal parasites should we use a holistic approach , International Journal of Infectious Diseases. 2010 ;vol. 14 ,p .732–738.

2 - Amer O , Ibraheem M, Ashankyty I and Al Sadok Haouas N . Prevalence of intestinal parasite infections among patients in local public hospitals of Hail, North western Saudi Arabia , Asian Pacific Journal of Tropical Medicine .2016 no. 9 ,vol.,1 ,p. 44–48.

3- Alam S , Khanumi H , Zaman H and Haquez R . Prevalance of different protozoa parasites patients visiting at ACCDR B hospital, Dhaka parasite , J. Asia. Soc. Bangladesh, Sci.2013. no. 39 , p.117-123..

4- Honorine D . Intestinal Protozoal Parasites and Diarrheal Disease in Bangladesh .The Infectious Diseases Society of America.2009 .no. 48 , p.1198–1200.

5- Rhadi H. An Epidemiology study on some pathogenic parasites with emphasis on the biology of Entamoeba histolytica in Basra city ,P.h. D , Thesis, Collage of cience.Univ. Basra. 2008.

6- A.Rhadi H. A survey of intestinal pathogenic parasites in Basra city\Iraq , J.Al-Taqnni .1994. no, 20, p. 56-62.

7- Al-Amar N . Prevalence of intestinal pathogenic parasites in some regions of Nineveh city and effects on haemoglobin level and esinophiles counts , M.Sc , Thesis, Collage of Science, Unvi. Mousil. 1992.

8- Al-Yassaree H . Isolation and identification of three intestinal paraites ,Entamoeba histolytica istolytica, Giardia lambliaamblia and Cryptosporidum parvum in Babylon province , M.Sc.Thesis , Coll Sci , Kufa Univ. 2004.

9- Rhadi1 H , Abdul – Zahra A and Abdul- Jabar S .Prevalence of Intestinal Pathogenic Parasites Basrah City, Iraq .International Journal of Science and Research (IJSR).2019. vol 8 Issue 2, February.

10- Wesley C , Vootchis M vanand Peter F . Protozoan infection :Intestinal Protozoan infection , Medscape . 2006.

11- Roberts T, Stark D , Harkness J and Ellis J ,Update on the pathogenic potential and treatment options for Blastocystis sp, Gut Pathogens.2014. vol. 6, Article number: 17 .

12- Bálint A , Dóczi I , Bereczki L , Gyulai R, Szűcs M, Farkas K , Urbán E , Nagy F , Szepes Z , Wittmann T and Molnár T . Do not forget the stool examination –cutaneous and gastrointestinal manifestations of

Blastocystis sp . Parasitol Res.2014. 113 p.1585–1590..DOI 10.1007/s00436-014-3805.

13- Tan K ,H. Mirza ,J. Teo B. Wu and P. Macary . Current views on the clinical relevance of Blastocystis spp .Curr Infect Dis Rep .2010. 12,p. 28–35.

14- Doyle P W ,M.M. Helgason , R.G. Mathias , E.M. Proctor , Epidemiology and pathogenicity of Blastocystis hominis. J Clin Microbiol.1990 . 28 ,p.116–121.

15- Stensvold C Blastocystis: genetic diversity and molecular methods for diagnosis and epidemiology. Trop Parasitol .2013.3 ,p. 26–34 .

16- Li L , Zhou Z , Du Z , Wang X , Wang L , Jiang J , Yoshikawa H ,Steinmann P , Utzinger J , Wu Z , Chen J , Chen S and Zhang L . Molecular epidemiology of human Blastocystis in a village in Yunnan province, China. Parasitol Int . 1016.56 ,p.281–286 , 2007.doi:10.