

A Study of Prevalence of *Entamoeba Histolytica* in Missangovernorate

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ABSTRACT

The study has been conducted to reveal the presence of amoebiasis in missan governorate for two successive years, 2015 and 2016 respectively. It was found, after depending on the mean numbers of the infected persons, that the high prevalence was in June in both years as the average of the infected persons (50.500) in 2015, (45.700) in 2016, while the lowest average of infection was in January (10.500) in 2015 and in May (5.800) in 2016.

As concern relation between the infection and the age groups, the infection rate was high in the (5-9) years age groups as it reacted (36.291) in 2015 and (35.625) in 2016, while the lowest infection rate was in (45) years and more (9.833) in 2015 and (7.917) in 2016.

Furthermore, no significant differences were noticed between the infection and the kind of sex.

Key words: *Entamoeba histolytica*, prevalence, missan

1-Introduction:

Intestinal protozoa are frequently transmitted via contaminated food and/or drinking water, but may also be spread from person to person through fecal-oral contact (**Abdel Hafez, et al, 1986**). Intestinal protozoan and helminthes parasites are widely prevalent causing considerable medical and public health problem in developing countries (**Bennett and Plum 1996**). World Health Organization (WHO) estimate that 3.5 billion people worldwide are affected and that 450 million are ill as a result of these infections (**Brown and Neva (1983)**). *Giardia lamblia* and *Entamoeba histolytica*, are the major intestinal parasitic agents (**Ciragil, et al 2003**). Although they are not serious life threatening parasites, they are still important infectious agents, especially to infants (**Demirci, et al, 2003**). In Iraq diarrheal diseases is the second common cause of mortalities among children (**Haque, et al. 2003**). According to the annual report of the Iraqi ministry of Health childhood diarrhea is increasing during the last decade, particularly following the last war in 2003 and the sanitary condition with general hygiene all over Iraq had been deteriorating (**Khan, et al. 1989**). Since identification of pathogens with clinical presentations, would help local health care providers to reduce morbidity and mortality due to bloody diarrhea (**Haque, et al. 2003**).

2- Materials and methods:

From reviewing the records of the Missan Health Department for the Division of Communicable Diseases for a period of 6 months From January 2015 to the end of June 2016. Statistical analysis was performed using Complete Random Design (CRD) for a two-factor factor experiment (years, months of the year), and overlap between them(

The significance of the differences between the averages was also tested using the Duncan's Multiple Rang Test (Narrator, 1984), where it was analyzed statistically using the SAS statistical analysis program.

3-Results

It was evident from the results of the statistical analysis (Table 1) that the infection was most severe during the month of June and in both years (depending on the infection averages), as the average number of infected in that month was 50,500. In 2015, he distinguished himself from the rest of the months, It was also clear from the results that the infection was the least possible during the month of January of the same year, when the average number of infected reached 10.500. As for the rest of the months, the average number of infected ranged between 15.00 in February and 12,500 in March and 18.100 in April after which it increased in May 31.600.

The infection was most severe in the month of June during the year 2015, when the average number of infected reached 50,500, and it was distinguished significantly from the rest of the months, and the infection was the least possible from the year 2016, where the average number of infected reached 5.8 in May. As for the rest of the months, it ranged between 16,900 in January and 6,500 in May, where it decreased in this month and then increased again during the remaining months. After calculating the averages for both years together, they were highest in June and lowest in March in both years at a significant level $50.0 \leq p$.

Table (2) shows the distribution of infection among age groups and according to gender, as samples were collected from persons infected with the parasite of different age groups, and the results showed that the highest average infection was in the age group 5-9 years in both years, it was 36,583 for 2015 and 35,625 for 2016. And the lowest average incidence is in the age group 45 years and over, as it was 9,833 in 2015 and 7,917 in 2016. It was also noticed from Table (2) that there is no significant difference in infection between males and females in both successive years.

Table (1) Average infection during the months of the year for the years 2015 and 2016

months of the year	Average number of infected		
	2015	2016	2015-2016
January	10.50D	BC16.900	13.700H
February	CD15.00	13.300C	H.14.150
March	12.500D	C10.700	H 11.600
April	CD 18.100	6.500C	H12.300
May	B 31.600	C5.800	18.700DH

June	A 50.500	A45.700	A 48.11
The effect of the months	32A.333	16A.483	

The averages carrying vertically different letters have significant differences between them at a probability level of $0.05 \leq p$

Table (2) Average incidence for age groups and sex for the years 2015 and 2016

Age groups / year	2015	2016	2015-2016
Day - 4	30.291AB	26.292AB	
9 - 5	36.583A	A 35.625	28.291B
14 - 10	25.417BC	26.542AB	36.104A
44--15	20.583C	19.625B	25.979BC
45 or more	9.833D	7.917C	20.104B
Sex			
Males	A25.55	A22.517	A24.033
Females	23.133AA	A21.482	A22.307

The averages carrying vertically different letters have significant differences between them at a probability level of $0.05 \leq p$

4-Discussion

The histiocytic amoeba is widely distributed worldwide, especially in tropical and subtropical regions(Belding , 1965), As there are usually no clean sources of drinking water, and there is no efficient sewage drainage system, which causes pollution to the environment with excreta, which leads to the creation of appropriate conditions for the permanence of pathogenic parasites that may cause death to many individuals, especially children (WHO, 1980).

The results of the current study showed that the infection with the histiocytic amoeba parasite increased and reached its peak in June for both years, with the average number of infected people in June of 2015 (50,500) and (45,700) of 2016, Then the infection decreased in the rest of the months until it reached the lowest possible level in January of 2015, when the average number of infection reached (10.500), and it was the lowest possible in the month of May of 2016, when the average

number of infection reached (5.800). In comparison with injury rates, the results were different. However, injury rates gave a more accurate indication of the infection status for the current study. The differences in incidence according to the months of the year may be due to weather fluctuations, as temperatures start to rise during the summer, then gradually decrease with the onset of autumn and then winter. The reason for the high rates of infection with the parasite in the summer season is attributed to the fact that this parasite is more widespread and widespread in hot areas than in cold areas) or as a result of the large number of insects that transmit diseases and their spread, such as house flies, which are mechanical carriers of intestinal protozoan cysts and worm eggs (Bhatia 1994 Ichhpujani and), The study also showed that the incidence was higher at ages less than 10 years and in both years compared to those over 10 years, as it was found that the infection was low and as little as possible in ages 45 and over, and in both years, the increase in infection may be attributed to the age of less than 10 Years of being less aware and aware of personal hygiene and general hygiene rules, and they are characterized by frequent movement, play, and direct contact with dust and with some of them, whether inside the home or outside the home and at school, and there are known social customs among children that lead to an increase in infection among this age group (Demirci *et al*, 2016) believe that parasitic intestinal infection is related to the manner in which sanitation is used and the associated habits related to public health. This was found from the study (Ciragil *et al*, 2003) in Turkey that the infection of the age group 1-14 years is the most of the rest of the ages. As for the comparison of infection with the rest of the Middle Eastern Arab countries, it was similar to (Khan, *et al*. 1989) in Saudi Arabia. Also, the decrease in infection with increasing age is similar to what Nimri (1994) found when studying the prevalence of this disease among the population of Jordan.

The statistical analysis did not show any significant difference between males and females being infected, perhaps due to the fact that both sexes live under one circumstance, and that their cultural and mental levels are close so that they practice the same behavior, which exposes them to infection in equal proportions. It became clear that the infection rate was high during February and January of 2016, and the lowest rate appeared in March of both years. This variation in infection rates according to the months of the year may be due to lower temperatures during the winter season with the onset of cold, as it helps to limit the growth and development of the parasitic stages, as believed by (Abdel-Hafez. *et al*, 1986), but the increase in infection in the month of January It may be due to the accumulation and maturation of parasitic pathogens that may have started in the autumn by consuming sugar-rich fruits and abundant presence of flies, but the effect of the disease did not appear until after the infection worsened at the beginning of the winter season. It is worth noting that in the autumn season the conditions are optimal in terms of temperature and weather suitable for the growth of the parasite stages, and at the same time, fresh vegetables and fruits such as grapes, humectants, figs and other fruits rich in sugar abound, which attract flies as they gather and be a vector for parasite cysts. In the summer, and where the infection was high during the study period, it may be due to the high temperatures that make people eat various types of refreshments and ice cream, especially from street vendors, in addition to their consumption of fruits, which are often contaminated with many pathogenic intestinal parasites, especially ameba dysentery as well. The increase in flies and dust particles during the transport and marketing process, which helps the spread of pathogens/

When comparing the rate of infection during the years 2015 and 2016, it became clear that the rate of infection with the parasite was higher in 2015 compared to the year 2016, and that the high rate of infection during the year 2015 may be attributed to several reasons, as previously mentioned, including the method of direct transmission using food and water contaminated with cysts of this parasite and lack of Adequate attention to hygiene as well as the low cultural and social level of the infection. Also, poor environmental conditions can contribute greatly to the spread of parasites through the arrival of waste residues into food or directly into the mouth from one person to another, in addition to the presence of serious problems in the level of sanitation and poor infrastructure, as well as the quality of the environment (Patz, 2000) It plays an important role in the transmission of intestinal parasites and in the evolution of this parasite's stages(Niazi.*et al*, 1976).

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