Incidence of Entamoebiasis Among Children In Abu -Ghraib Area Baghdad

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Summary

A total number of 600 fecal samples were collected from patients attaining general Abu-Ghraib hospital during the period from 1st march 2006 till 28th February 2007. The samples were examined for detection of intestinal protozoan *Entamoeba(E).histolytica* infection by direct smear with Iodine stain and flotation technic using Zinc sulphat solution .The overall rate of infection was 32.5%.Asignificant differences were observed in the rates of infection between males and females which constituted 46.44%, 25.64% respectively. All age groups were infected, the highest rate of infection 61.9%, 29.6% were noticed in males and females of 2-5 years old respectively, whereas the lowest rates 15.15%, 10% were recorded at the age of 9-11 years respectively . The incidence of *E. histolytica* infection was observed allover the year, and the highest rates of infection 51.3%, 38%were recorded in spring and summer respectively .while the lowest rate 18.6% was noticed in full .Meanwhile it was 14% in winter season.

انتشار داء الزحار الاميبي في الاطفال في منطقة ابو غريب- بغداد

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الخلاصة

تم جمع 600 نموذج براز من مرضى الاطفال المراجعيين مستشفى ابو غريب العام للفترة من الاول من اذار 2006 حتى 28 من شباط 2007 . فحصت النماذج للتحري عن الاصابه المعويه بطفيلي *Entamoeba histolytica* باستعمال مسحات البراز المباشره مع صبغة الايودين وتقنية التطويف باستخدام محلول الزنك سلفيت . كانت النسبه الكليه للاصابه بالطفيلي 32.5% وقد لوحظ فرقاً معنوياً في نسب الاصابه بين الذكور والاناث 46.44% و25.64% على التوالي , سجلت الاصابة بكل الاعمار وكانت اعلى نسبه للاصابه 61.9% و29.6% في الذكور والاناث على التوالي وباعمار 2-5 سنوات وسجلت اقل نسبه للاصابه15.15% 10% لكل من الذكور والاناث على التوالي في الاعمار 9-11 سنه ,لوحظت الاصابه بالطفيلي على مدار السنه , وقد سجلت اعلى نسبه للاصابه 51.3% و 38% في الربيع والصيف على التوالي بينما لوحظت اقل نسبه للاصابه 18% في الخريف وكانت النسبه 14% في فصل الشتاء .

Introduction

Entamoeba[E] histolytica is well recognized as a pathogenic amoeba. The clinical features was a wide spectrum from asymptomatic luminal amoebiasis to invasive intestinal causing colitis and dysentery with extensive ulceration of the colon leading to sever bloody diarrhea which can be fatal due to perforation and peritonitis .The Infection may metastasizes to hepatic and pulmonary organs causing abscesses (1 , 2) .

Entamoebiasis is usually endemic and world wide with higher incidence in developing countries acquired by ingestion of viable cyst in contaminated food or water the infection is more prevalent and produce sever symptoms in warm climate, but in cooler climate in mental hospital, prison and children home with poor personal hygiene , were person to person contact is the methods of transmission ,the incidence is higher in compared with that of the general population of the same localities(2). In rural population in atemperate climate and throughout many tropical communities, transmission of infection upon negligence in personal hygiene and from food handlers and unpotable water supplied(3).The study is to assess the status of the infection and estimate the prevalence and seasonal variation in local

area Abu Ghraib. Further is to fined out the effect of age, sex on the infection rate during one year period.

Materials and Methods

The study was conducted on 600 stool specimen [50 sample/month]were collected from children at age between 2-11 years old , during the period from 1st march 2oo6 till 28th February 2007. Children attaining Abu-Gharib hospital suffering from diarrhea , colic , abdominal pain in addition to lost appetite and loss of weight .Specimen submitted to the laboratory in clean container which labeled with name sex and date of collection. Examinations of stools were accomplished by direct smear preparation with iodine stained and flotation technique using zinc sulphate solution for detection and identification of parasite cyst, as described by (4). Examinations of smears were made under low power 10X then high power magnification.40X.

Results

The study revealed that the overall rate of infection with *E.histolytica* was 32.5% [table 1] .A significant difference were observed in the infection rates between males and females , the highest rate of infection was 170 (46.66%) out of 366 males . While the lowest rate 60(25.64%) out of 234 was found in females [table 2]. According to the age groups the study showed that all age groups were susceptible to the infection with *E.histolytica* ,the highest rate 61.9% ,29.6% were observed in males and females respectively at the age of 2-5 years old, whereas the lowest rates 15.15% ,10% was recorded at the age group of 9-11 years for both males and females respectively (table 3) . In regarded to seasonal distribution the infection with *E.histolytica* was recorded all over the year ,the maximum rate 51.3%.,38% were found in Spring months (March and April , May) and in Summer season (June , July , August , September) respectively .the infection rate then declined and reached the minimum 18.6% in Autumn (October , November , December). Then 14% in winter season (January and February) [figure 1].

Table (1): Infection rates of *E. histolytica* during Months of the year

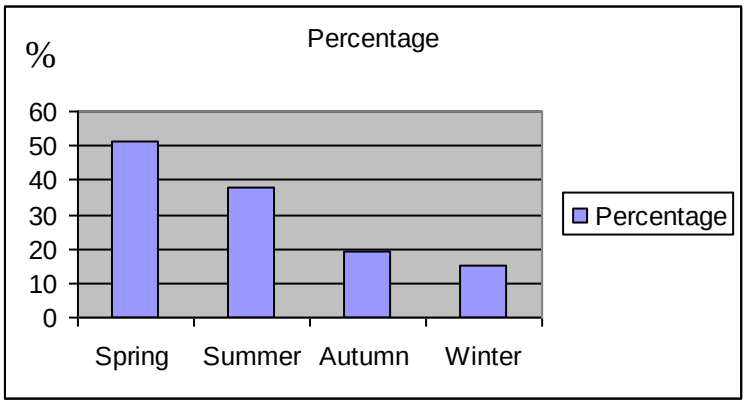
Months	Sample(no)	Infected(no)	%
March	50	30	60
April	50	25	50
May	50	22	44
June	50	22	44
July	50	18	36
August	50	18	36
September	50	18	36
October	50	10	20
November	50	9	18
December	50	9	18
January	50	7	14
February	50	7	14
Total	600	195	32.5

Table(2) : Rates of infection of E. histolytica (cyct) according to sexes.

Total samples	Males (No)	Infected (No.)	%	Females(no)	Infected (No.)	%
600	366	170	46.44	234	60	25.64

Table(3): Infected Rates In Males and females According To Age Groups

Age groups	males(no)	Infected(no)	%	Females(no)	Infected(no)	%
2-5	210	130	61.9	159	47	29.6
6-8	90	30	33.33	45	10	22.22
9-11	66	10	15.15	30	3	10
Total	366	170	36.8	234	60	20.6



Figure(1) : Infection rates with *E. histolytica* during seasons of year

Discussion

Results revealed that the overall rate of infection with *E.histolytica* was 32.5% , and when compared with the results of previous studies performed in Iraq , it was higher than the rate 23.8 % which recorded by Rahif and Al-Saadi(5) in Baghdad city , and was in correspondence with (6) which recorded 31% and (7) result 35.6% in Al-Rammadi city . (8) found 10% pollution rate with parasite in tap water using from regions around Baghdad city .The higher incidence of infection in the present study was attributed to the area where the study applied , Abu_ Ghraib area around Baghdad city which is suffered from a simple requirement of hygiene measurement especially at the last years , in this area combined sewer overflows and discharge raw sewage from sewer pipes into water ways are common contributors to high fecal pollution levels in Rural areas, infection also could be from food handlers . Result was in the line with observation of (9), (10). The higher incidence of the parasite were in rural areas compare to Urban communities , and the increase in the prevalence of infection in the world is due to pollution of drinking water with sewage .Result also compared with that recorded in many countries , in Jeddah -Sudai Arabia (11) recorded a rate 22% , (12) found out 12 % while (10) recorded 4 % , these rates were generally lower than had been reported in the present study , the lower prevalence and the disparities in the rates of infection where either upon improvement at the living standard in these countries or differences in the number of samples , age of the patient , the environment around the children or to the method used for detection parasite .Regarding the sex results had show the highest rate of infection 46.44% in males, while the lowest rate 25.64% was noticed in female children. These finding were in agreement with (7) and disagreement with (13) results which found a higher incidence in females rather than males due to nature of the society. Roberts (14) found that liver abscess due to ameobiasis in males were 7-10 times than females. (15) and (6) mentioned that there is no significant difference between males and females infection upon existing both in the same environment . We thought rural males exist frequently outside , playing with other children were person to person contact and contaminated food and water by which infection acquired make them more vulnerable to infection than females.

Results revealed that all age groups were infected and a higher incidence of infection 57.14%, 29.22% were observed among young children of 2-5 years old for both males and females whereas the infection rates were decline in males and females at age of 9-11 years, asimilar finding was recorded by (16, 17). (18) Noticed un increase in the infection rates reached 64.9% in children down age school 1-3 years.

The fact that higher incidence of infection among young down 5 years old attributed to negligence in the cleaning , lack of appropriate hygiene measurement , low society level in families in rural areas or to the activity of children at this age and playing with other children and through contaminated food and water . (3) mention that person of all races , ages and both sixes appear to be equally susceptible to infection and differences in distribution can be explained in the basic of differences in exposure .

It was shown that Entamobiasis was appeared all over the year, and significant differences in various months were detected. The highest incidencerate51.3%,38% were observed during spring and summer season, these rates were decline reached 14%in autumn and winter season.These observation were in agreement with those reported by (5,7,19)increasing in the rates of infection during spring and beginning of summer attributed to warm climate which is preferable for cyst to remain viable ,also activities of people during these season make them more exposure to source of infection . (20)claimed that the infection accrue more in moistureseason reached the min and in raining season than cold and dry.

Abu-Ghraib area as well as many rural areas in Baghdad were suffered from lack of tap water especially in summers people used water pump in these areas that raised the pollution problems in addition to that un potable and river water was used for ice made used for human consuming in hot summer, also drainage the human sewer in to the river and poor filtration of purification station of Baghdad city also dircthis greater opportunity for exposures to infection

It was concluded that investigation about *Entamoeba histolytica* infection in localities areas may provide reliable estimation of incidence of infection in large communities.

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