Hematological test in patients with intestinal parasites in Al-Hashimiah village

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Abstract

An epidemiological study was conducted during the period from May 2008 to January 2009 . this study was carried to reveal the epidemicity of intestinal parasite in human and it's effects on some blood physiological aspects in Babylon province . the results show the following :-

The percentage of male and female infected with intestinal parasite during study period reached about 50% and the percentage of infection increased significantly with age progress ($P<0.05$) .

There are many intestinal parasites were detected such as (14.2%) G*iardia lamblia, (*10.1%) *Ascaris lumbricode ,(*18.4%) *Entameoba histolytica* , (12.3%) *Entameoba coli* ,(18.4%) *Ancylostoma duodenale* , (20.4%) *Enterobius vermicularis* and (6.1%) *Hymenolepis nana* ,

The total count of R.B.C. and Hb of infected human were decreased significantly which is reached 3.9500 ×10•cell\mm³ and 8.6mg\100ml , respectively compared with which was 5.62×10 cell\mm³ and 11.57mg\100ml ($P<0.05$ those non infected

Significant increase were noticed in total count and differential counts of W.B.C. of infected human which is reached i0.6 cell\mm³ as compared with uninfected human which is reached 6.31 cell

Introduction

The parasitic infections in people are regarded as a major problem in the world especially in the communities suffering from poor sanitation and low personal hygiene such as rural communities(Garcia & Bruckner , 1993) intestinal parasites distributed in various ages equally in both rural and civilian environments were the rural environments provides normal condition for presence of such infectious as general while the civilian environment provide a social conditions for such infections (Hashem *et al.* ,1999)

In Iraq there are many epidemiological studies of parasites infection , were infected.

Study of Hanoon (1976)in AL-Mosul province , study AL-Jeboori &Shafiq (1976)in Baghdad , study Mahdi & Jassim (1987)in Basrah province , study Alsaadi et a l. (1994)in Najaf province (AL-Kuffa) , study AL-Kafaghi (1999) in Babylon province & last the study of Hashem et al. (1999) in Hilla .

Materials And Methods

1-Study population

A sample of ninety-seven both male and females with different age groups . They were inhabitant of AL-Hashimiah village –Babylon province , during the period of May 2008-Jan. 2009 . this population is considered as rural population . from each stool and blood samples were collected . 2-Intestinal parasites :

Stool inhibiting parasite was representing intestinal funa .Stool samples were collected into clean , water tight containers with screw capped .gross macroscopic appearance including color consistency , mucus and\or blood . were observed . Direct wet saline preparation (0.9% Nacl) and salt floatahon idodenated preparation were done (Zeaby 1997) .

3-Hematological tests :

For each person under the study test the following were performed; erythrocyte count (Hall and Malia , 1984); hehoglobin assessment by Hb meter (Sood , 1976); total and differential white blood cell counts (Brown , 1976)..

4-Statistical Analysis :

Chi square tests and LSP tests (Campbell , 1976) .

Results :-

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Table -1- The total infection is (50%) .The total tested samples is (97)and infected sample 49

Region	Tested No	Infected No.	Percentage of infection
Al-Hashmiah	97	49	50.5

Table-2- The total infection percentage of human with intestinal parasite is (50%) of them (13.4) for male and (37.1) for female

Sex	Tested No	Infected No.	Percentage of infection
Male	41	13	13.4
Female	56	36	37.1
	97	49	50

Significant differences ($P \leq 0.05$).

Table-3- The total infected percent according to parasites among population the participated intestinal parasitic infection type

Parasite	Infected No	Percentage of infection
Al-Hashmiah	7	7.2%
Antamoeba histolytica	6	6.1%
Entameoba coli	9	9.2%
Giardia lamblia	5	5.1%
Hymenolepis nana	3	3%
Ascaris lumbricoid	9	9.2%
Ancylostoma duodenal	10	10.2%
Summation	49	50%

In table -4- shows decreasing ($P \leq 0.05$)in RBC. (3.9500) x10^{6} cell\mm^{3} &Hb (8.6)mg\100ml in infected No. in comparison with non infected RBC. &Hb were (5.6x10^{6})cell\mm^{3} & 11.57 respectively W.B.C. (10.6)x10^{3} cell\mm^{3} show increasing in infected No. in comparison with non infected (6.31)x 10^{3} cell\mm^{3} .

Treatment	RBC.x10^{6} cell\mm^{3}	Hg mg/100ml	W.B.C.x10^{3} cell\mm^{3}

Infected No	**3.9500±4.5**	**8.6±0.21**	**10.6±0.13**
	9	**9**	**9**
Non infected No.	**5.62±4.81**	**11.57±0.13**	**6.3±4.9**
	10	**10**	**10**

***different letters means significant differences .**

The No. of eosinophils (6.2)% increased significantly (0.05) in infected human . There are no changes in No. of lymphocytes , monocytes , neutrophil , basophil .

	Lymphocytes	**Neutrophil**	**Monocyte**	**Eosinophil**
Infected No	**68.08**	**26.7**	**1.5**	**6.2**
Non infected No	**68.07**	**26.5**	**1.8**	**4.3**

Significant differences ($P \leq 0.05$) .

Discussion

The results showed that total infection with intestinal parasites (50%) is high in table -1- because ther are many people in rural areas who suffering from parasitic infection due to poor sanitation poor public health practices , increasing of vectors & malnutrition states in addition to using of river water directly for drinking & washing . It is clear that in female infection was 37.1% due to high chances for infection in these ages & not realize the good sanitation in compare with the civilian women . (Abass , 1997 ; AL-Mamouri ,2000) .

There are 6 types of intestinal parasites (table -1-) first *Giardia lamblia* infection mainly responsible for diarrhea especially in children rather than adults (Zibig , 1997; Tsuyuoka *et al.* ,1999).

The infection with *Ascaris lumbricoides* is very common in the world ,it is increased in poor sanitation regions , particularly when human face is used as a fertilizer and when children defecate directly on the ground (Zibig , 1997).

Infection with *Entameoba histolytica* regard as critical infection & world wide distribution . Their cysts transmitted through contaminated food and water hand to mouth contamination . Flies cockroaches serve as vector for *E. histolytica* infection (Zibig , 1997).

E. coli non pathogenic parasites in human . It is world wide distribution & their cysts contaminate food & drinking water then infect humah . detection of these non pathogenic parasites in human would suggest ingestion of contaminated water or food & may indicate possible exposure to pathogenic organisms (Schmidt & Roberts , 1989 ; Yilmaze *et al.* 1999).

Infection with *Ancylostoma duodenal* is wild world distribution particularly in the inhabitant practice , poor sanitation practices , especially with regard to proper fecal treatment & disposal . It infect persons who work barefoot in feces contaminated soil (AL-Mamouri, 2000).

E. vermicularis one of the famous children worms infection especially in crowded area such as schools & orphans . It distributed all over the world . (Prince , 1998).Infection with *H. nana* occurs by presence of rodent or beetles (Tribolium) in houses .These worms have different life cycle , it can infect human with or without intermediate host (Schmidt &Roberts , (1989) .

The results of heamatologic study (table-1-)show decrease in RBC. Count & Hb because the intestinal parasite cause digestive disturbance &vitaminosis & also release the trophozoite motile feeding stage and adhere to villi of intestine &suck the chime from villi another parasite suck nearly (50 ml) of blood per day (Stephenson , 1993 ;Cheng , 1974).

In table 4&5 the result show increasing in W.B.C. especially in eosinophils due to ability of eosinophils to destroy the parasites by attachment of parasite wall & secretion of granules act in external parasite wall destructing .

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الفحوصات الدموية لدى المصابين بالطفيليات المعوية

في قضاء الهاشمية(بابل)

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الخلاصة:-

أجريت دراسة وبائية خلال الفترة من(1 أيار 2008) إلى (كانون الأول 2009) تناولت هذه الدراسة وبائية الإصابة بالطفيليات المعوية في الإنسان في (قضاء الهاشمية) وتأثير هذه الإصابة في بعض معايير الدم الفسلجية:-

كانت نسبة الإصابة الكلية بالنسبة للرجال والنساء (50%) وارتفعت هذه النسبة معنوياً مع زيادة العمر واظهرت نتائج البحث وجود (6) أنواع من الطفيليات هي للجياردیا لامبليا (14.2%) ،الصفر الخراطيني (15.1%)اميبا الزحار(18.4%) اميبا اليود (12.3%)الدورة السطحية (18.4%)الدورة الدبوسية (20.4%)وأخيرا الهايميتوليس فانا وكانت نسبتها (6.1%).

العد الكلي لكريات الدم الحمر وخضاب الدم تناقص بشكل معنوي في الأشخاص المصابين ووصل إلى (4.3700)خلية /ملم^3 و (8,6)ملغم/100 مل على التوالي بالمقارنة مع الأشخاص غير المصابين حيث كانت (5.6 x 10^3)خلية ملم^3 (11.57) ملغم / 100 مل على التوالي وتحت مستوى معنوية (0.05)

ازداد معنوياً العدد الكلي لكريات الدم البيض في الأشخاص المصابين وبلغ (10.6) خلية /ملم^3 بالمقارنة مع الأشخاص غير المصابين (6.3) خلية /ملم^3