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

Assistant lecturer
Lika' Adday
The College Of Dentistry
Babylon University

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%) Giardia lamblia, (10.1%) Ascaris lumbricoides, (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 ×10⁶ cell/mm³ and 8.6mg/100ml, respectively compared with which was 5.62×10⁶ 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 10.6 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.


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:

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

<table>
<thead>
<tr>
<th>Region</th>
<th>Tested No</th>
<th>Infected No.</th>
<th>Percentage of infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al-Hashmiah</td>
<td>97</td>
<td>49</td>
<td>50.5</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Sex</th>
<th>Tested No</th>
<th>Infected No.</th>
<th>Percentage of infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>41</td>
<td>13</td>
<td>13.4</td>
</tr>
<tr>
<td>Female</td>
<td>56</td>
<td>36</td>
<td>37.1</td>
</tr>
<tr>
<td></td>
<td>97</td>
<td>49</td>
<td>50</td>
</tr>
</tbody>
</table>

Significant differences (P ≤ 0.05).

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

<table>
<thead>
<tr>
<th>Parasite</th>
<th>Infected No</th>
<th>Percentage of infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al-Hashmiah</td>
<td>7</td>
<td>7.2%</td>
</tr>
<tr>
<td>Antamoeba histolytica</td>
<td>6</td>
<td>6.1%</td>
</tr>
<tr>
<td>Entameoba coli</td>
<td>9</td>
<td>9.2%</td>
</tr>
<tr>
<td>Giardia lamblia</td>
<td>5</td>
<td>5.1%</td>
</tr>
<tr>
<td>Hymenolepis nana</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>Ascaris lumbricoid</td>
<td>9</td>
<td>9.2%</td>
</tr>
<tr>
<td>Ancylostoma duodenal</td>
<td>10</td>
<td>10.2%</td>
</tr>
<tr>
<td>Summation</td>
<td>49</td>
<td>50%</td>
</tr>
</tbody>
</table>
In Table 4 shows decreasing (P ≤ 0.05) in RBC, (3.9500) x 10^9 cell/mm³ & Hb (8.6) mg/100 ml in infected No. in comparison with non-infected RBC. & Hb were (5.6 x 10^9) cell/mm³ & 11.57 respectively. W.B.C. (10.6) x 10^9 cell/mm³ show increasing in infected No. in comparison with non-infected (6.31) x 10^9 cell/mm³.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>RBC x 10^9 cell/mm³</th>
<th>Hg mg/100 ml</th>
<th>W.B.C. x 10^9 cell/mm³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infected No.</td>
<td>3.9500±4.5</td>
<td>8.6±0.21</td>
<td>10.6±0.13</td>
</tr>
<tr>
<td>Non-infected No.</td>
<td>5.62 ±4.81</td>
<td>11.57±0.13</td>
<td>6.3±4.9</td>
</tr>
</tbody>
</table>

* Different letters mean 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.

<table>
<thead>
<tr>
<th>Infected No</th>
<th>Lymphocytes</th>
<th>Neutrophil</th>
<th>Monocyte</th>
<th>Eosinophil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infected No</td>
<td>68.08</td>
<td>26.7</td>
<td>1.5</td>
<td>6.2</td>
</tr>
<tr>
<td>Non-infected No</td>
<td>68.07</td>
<td>26.5</td>
<td>1.8</td>
<td>4.3</td>
</tr>
</tbody>
</table>

Significant differences (P ≤ 0.05).

Discussion

The results showed that total infection with intestinal parasites (50%) is high in Table 1 because there are many people in rural areas who suffer 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 females, 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 feces 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 humans. 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, 1997).
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 hematoologic 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.

**References:**

الفحوصات الدموية لدى المصابين بالطفيليات المعوية
في قضاء الهاشمية (بابل)
لقاء عداي الريشي
كلية طب الأسنان / جامعة بابل

الخلاصة:

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

كانت نسبة الإصابة الكلية بالنسبة للرجال والنساء (50%) وارتفعت هذه النسبة معنواً مع زيادة العمر واظهرت نتائج البحث وجود (6) أنواع من الطفيليات هي للحباريا امبيا (14.2%) الصفر الخراطيني (15.1%)، امبيا الزحار (18.4%)، امبيا البو (2.3%)، الدير الوردي (12.3%)، الدير السطحية (18.4%)، الدير الدبوسية (20.4%)، وأخيراً الهايميتوليس فانا وكانت نسبة (6.1%).

العد الكلي للكريات الدم الحمر وخصاب الدم تناقص بشكل معنوي في الأشخاص المصابين ووصل إلى (4.3700) خليطة /ملم³ و (10.6) ملغ /100 مل على التوالي بالمقارنة مع الأشخاص غير المصابين حيث كانت (11.57) خليطة /ملم³ و (10) ملغ /100 مل على التوالي وتحت مستوى معنوي (0.05)

أما عدد معنوي العدد الكلي للكريات الدم البيضاء في الأشخاص المصابين وبلغ (10.6) خليطة /ملم³

المقارنة مع الأشخاص غير المصابين (6.3) خليطة /ملم³