Prevalence of amoebic dysentery and giardiasis in Al-Najaf

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ABSTRACT
The infestation with amoebic dysentery and giardiasis in the intestine play an important role in the human health deficiency in Al-Najaf since the infections may lead to gastroenteritis in human. To learn about the range of extending amoebic dysentery and giardiasis in people ( male and female ) which their ages range (1-50 ) years old this study was established for 7 months (January 2018 to July 2018) in Al-Najaf. A total of 377 patient examined in this study, 119 infections Giardia lamblia and 258 infections Entamoeba histolytica, Results indicated that the highest infection was 16.3 in age range (31-40 ) in male patients infected with giardiasis, and in amoebic dysentery also the highest infection was 17.8 in age range (31-40) in male . its referred that no significant differences between Entamoeba histolytica and Giardia lamblia according to age (31-40) in male. As The results indicated that the rate of infection in males is higher than females in all age and in both parasites. The results recorded the highest rate of infection in both parasites during the months of the study in July reaching 12.9 in Giardia lamblia and 19.2 in Entamoeba histolytica , This is evidence of significant differences between Giardia lamblia and Entamoeba histolytica in infections during the months of the study, Where the rate of infection was increased in the amoebic dysentery reaching(16.3 in April),(19.4 in May and June) and (19.7 July ) respectively.

INTRODUCTION
Amoebic Dysentery
The foremost causes of diarrhea are parasites, which invade the digestive tract termed as gastrointestinal parasites. Diarrhea considers as one of the main important reasons for death in the world (Ravdin and Stauffer, 2005) . Intestinal parasite caused by Entamoeba histolytica of the most common diseases in the world, World Health Organization reporting infection 3.5 billion and 450 million people (Organization, 2000) . This parasite is extant in polluted water and sludge in 2 forms: trophozoites and cysts (Begum et al, 2015) . The life cycle of it initiate with cysts entry to the body by drinking water or eating food which impure or contaminated with feces while the trophozoites appear after excystation in small intestine then belay itself the large intestine by clinging to the colonic mucosa (Begum et al., 2015; Luna-Nácar et al., 2016) leading to Different severe symptoms of which the ulcer, which
cause intestinal colic and diarrhea and bleeding of mucosa, loss of appetite, vomiting (Kucik et al., 2004), the main source of infection that leading to anemia and bad nutrition anemia is the lack of sodium and potassium ions (Keen, 2013).

Giardiasis
Giardiasis is the infection by Giardia lamblia in which the parasite is responsible for inflammation in gallbladder and bile duct lining mucosal cells that wastage of the weight and mal-absorption (Haque et al., 2006). In this infection, the competition between the parasite and the host on the nutrition elements, especially protein, minerals as Fe, carbohydrates, lipids and vitamins leading to anemia and bad nutrition (Ejaz et al., 2011). Giardiasis symptoms including diarrhea, steatorrhea, abdominal cramps, vomiting may also occur (Ponce-Macotela et al., 2005) occurring Infection with this parasite Giardia lamblia by ingestion food and water contamination with cyst stage. Prevalence Infection with amoebiasis and giardiasis In all countries of the world, including Iraq, severe diarrhea as a sign of infection with these two parasites (Ravdin and Stauffer, 2005). The Infections rate varies in age categories (Sayyari et al., 2005; Sharma et al., 2004). Giardia lamblia is frequently reported in children, and Entamoeba histolytica is reported more in the oldest (Al-Shaheen and Ayad Kassim, 2007). The study is established to know the prevalence of amebic dysentery and giardiasis in male and female whose age ranged (1-50) years old for 7 months (January 2018, July 2018).

MATERIALS AND METHODS
Samples collection
The samples collected from 377 male and female whose age ranged (1-50) years suffering from diarrhea who review Al-Sadr Teaching Hospital / Najaf/ Iraq for the purpose of diagnosis and treatment for 7 months (January 2018, July 2018). Stool specimens were collected in clean plastic containers with mention the following details (name, age, sex and date) and another details such as textures mucous, bloody.

Diagnosis of samples
We used the swab direct method by mixing the amount from stool (size of the pinhead) with a drop of normal saline solution on a clean glass slide, placed the slide under Olympus light microscope (magnification power 40) to detect about two stages trophozoites and cyst for two parasites Entamoeba histolytica and Giardia lamblia (Singh et al., 2009).

Statistical analysis
Data were analyzed with using Chi-X² with P<0.05 for an explanation of statistically significant between infections amoebic dysentery and giardiasis for the male and female whose age ranged (1-50) years old for 7 months (January 2018, July 2018).

RESULTS AND DISCUSSION
The most common two parasites Entamoeba histolytica and Giardia lamblia are transmitted through food contaminated with parasites (Bazzaz and Ahmad, 2016). In this study, a total of 377 patient examined 119 infections Giardia lamblia and 258 infections Entamoeba histolytica in (males and females) which their ages range (1-50) years old the study was conducted within 7 months (from January 2018 to July 2018).
Table 1: Show number of infected patients (male and female) with Giardia lamblia and their percentages (%) according to sex and age categories by with Chi-X² (p<0.05).

<table>
<thead>
<tr>
<th>Age categories</th>
<th>Number of patients</th>
<th>Male of %</th>
<th>Female of %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 10 year</td>
<td>7</td>
<td>38.9</td>
<td>61.1</td>
<td>18</td>
</tr>
<tr>
<td>11 - 20 year</td>
<td>15</td>
<td>55.6</td>
<td>44.4</td>
<td>27</td>
</tr>
<tr>
<td>21 – 30 year</td>
<td>18</td>
<td>64.3</td>
<td>35.7</td>
<td>28</td>
</tr>
<tr>
<td>31 – 40 year</td>
<td>24</td>
<td>66.7</td>
<td>33.3</td>
<td>36</td>
</tr>
<tr>
<td>41 – 50 year</td>
<td>7</td>
<td>70</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>71</td>
<td>59.7</td>
<td>40.3</td>
<td>119</td>
</tr>
</tbody>
</table>

X² = 16.3 Sign 31 – 40 male

Table 2: Show number of infected patients (male and female) with Entamoeba histolytica and their percentages (%) according to sex and age categories by with Chi-X² (p<0.05).

<table>
<thead>
<tr>
<th>Age categories</th>
<th>Number of patients</th>
<th>Male of %</th>
<th>Female of %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 10 year</td>
<td>20</td>
<td>48.8</td>
<td>51.2</td>
<td>41</td>
</tr>
<tr>
<td>11 – 20 year</td>
<td>26</td>
<td>53.1</td>
<td>46.9</td>
<td>49</td>
</tr>
<tr>
<td>21 – 30 year</td>
<td>34</td>
<td>65.4</td>
<td>34.6</td>
<td>52</td>
</tr>
<tr>
<td>31 – 40 year</td>
<td>54</td>
<td>69.2</td>
<td>30.8</td>
<td>78</td>
</tr>
<tr>
<td>41 - 50 year</td>
<td>20</td>
<td>52.6</td>
<td>47.4</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>59.7</td>
<td>40.3</td>
<td>258</td>
</tr>
</tbody>
</table>

X² = 17.8 Sign 31 – 40 male

Table 3: Show number of infected patients and their percentages (%), in two parasites Entamoeba histolytica and Giardia lamblia for 7 months according to Chi-X² (p<0.05).

<table>
<thead>
<tr>
<th>Months</th>
<th>Giardia lamblia</th>
<th>Entamoeba histolytica</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of patients</td>
<td>Percentages %</td>
</tr>
<tr>
<td>January</td>
<td>4</td>
<td>3.4</td>
</tr>
<tr>
<td>February</td>
<td>14</td>
<td>11.7</td>
</tr>
<tr>
<td>March</td>
<td>15</td>
<td>12.6</td>
</tr>
<tr>
<td>April</td>
<td>19</td>
<td>16</td>
</tr>
<tr>
<td>May</td>
<td>20</td>
<td>16.8</td>
</tr>
<tr>
<td>June</td>
<td>22</td>
<td>18.5</td>
</tr>
<tr>
<td>July</td>
<td>25</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>119</td>
<td></td>
</tr>
</tbody>
</table>

X² = 12.9 Sign July

and 17.8 % respectively in (Tables 1 and 2). The reason may be due to eating fast food that lacks the cleanliness which consumed by these ages (Heyworth, 2016; Yooyu and Lihua, 2011).

The results showed that an insignificant differences rates between male and female infections which in contrast to another area in Iraq as in Baghdad (Jaaffer, 2011) and Mosul (Fattuhi and Hussein, 2008) and in both parasites This indicates significant differences between males and females using Chi-X² at (P<0.05), This is a clear reference of public health-related cause that males are more sensitive to be feeding on an insecure food than females (Figures 1 and 2). Figures 1 and 2 which indicates that the two parasites Entamoeba histolytica and Giardia lamblia have their common source of infection.
that is contaminated water and contaminated food. Other researchers have also reported the different infestation in their studies referring to similar factors (Sharma et al., 2004) while many studies have also mentioned that the males have a more incidence of these parasites (Shenoy et al., 1998) and this may be because the males have more outdoor actions if compare to females in rural areas in addition that they are more exposed to unhealthy ecological situations (Sayyari et al., 2005).

The higher infestation in *Entamoeba histolytica* than *Giardia lamblia* was like to most modern study done in Iraq (Muhsin, 2009; Al-Saffy and Z., 2012), where was 19.2 *Entamoeba histolytica* in month July and 12.9 in *Giardia lamblia* in month July also using Chi-Square test at (P <0.05) and Figure 3. Maybe amoebic dysentery is the most prevalence diseases caused by parasites if compare with other diseases (Bazzaz and Ahmad, 2016). Generally, the significantly higher diarrhea disease rate was caused by Entamoeba histolytica more than Giardia lamblia during 7 months (from January to July). The seasonal variation was observed in present study, The finding that infections rate by *Entamoeba histolytica* increased in April 16.3, May and June 19.4 and July 19.7 respectively, compared to rates of giardiasis reaching 16 in April, 16.8 in May, 18.5 in June and July in 21, which are hot and moist months, followed by decrease in January, February and March reaching 3.9, 7.8 and 13.5 respectively in the amoebic dysentery. In giardiasis, 3.4, 11.7 and 16.8 respectively in the same months, which are cold months Table 3. This may be due to cause that diarrheal diseases are increasing in the hot season due to more contamination of drinking water by different means (Natividad et al., 2008). The environmental conditions have a great influence on the infection of two parasites as the results showed that during hot and humid months are more than cold months due to the activity of cyst is higher in summer months (Kucik et al., 2004; Bazzaz and Ahmad, 2016) and this in agreement with many other studies. (Kurt et al., 2008)

CONCLUSIONS

We concluded that the city Al-Najaf/Iraq is endemic in which amoebic dysentery and giardiasis, We found 258 patient infected with amoebic dysentery and 119 patient infected with giardiasis during one year. So, Environmental health programs should be disseminated as well as ways for preventing from diseases and its transmission. According to our findings, We found gender and age to play major roles in the occurrence of the disease. Moreover, the disease was found to possess a seasonal pattern of incidence. More time and efforts have thus to be paid for increasing public awareness about transmission ways the diseases. Such efforts should be performed with more interaction between university hospitals and health centers and mass media in endemic and hyperendemic areas.

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