DESCRIPTIVE STUDY OF CUTANEOUS LEISHMANIASIS IN WASIT PROVINCE /IRAQ IN 2018

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ABSTRACT

In relative to other skin diseases, cutaneous leishmaniasis (CL), consider a mild disease which well known as oriental sore. Cutaneous Leishmania species transmitted in a specific species of sandflies, as biological vectors that spread the disease to humans. This study was done to describe epidemiological aspects of cutaneous leishmaniasis in Wasit province in Iraq, including the descriptive epidemiological distribution according to person, place and time in 2018. This cross-sectional study was including all the urban and rural regions of Wasit province located in eastern Iraq. Data on human cases were prepared by Wasit health office for the year 2018. Data were analyzed by SPSS version 23 using frequency distribution. Patients with cutaneous leishmaniasis in Wasit province characterized by that (74.6%) of them were less than 10 years old, with the lowest percentage in old age patients (>70) years old. Regarding gender, there is no apparent difference between males (50.9%) and females (49.1%). The disease was more prevalent in patients living in rural (62.5%) areas than in urban areas (37.5%). The highest percentage of registered cases was in the Kut primary healthcare district during November and January. Cutaneous leishmaniasis in Wasit during 2018 affecting younger age groups mostly of both sexes living in rural areas. Most of the cases registered in winter months especially in the AL- Kut health district.

Keywords: Cutaneous Leishmaniasis, Descriptive Epidemiology, Distribution


INTRODUCTION

Leishmaniasis is one of vector-borne tropical/subtropical diseases caused by a type of protozoan belonging to the Leishmania genus that transmitted by Phlebotomus and Lutzomyia sandfly vectors to humans. The clinical manifestations of the disease range from cutaneous (CL), muco-cutaneous to visceral leishmaniasis (VL), and the severity of manifestation depends on the species involved and the way of an immune response to infection.¹ According to the World Health Organization reports, leishmaniasis is considered among the top eight main tropical diseases in the world with about 2 million annual occurrences.² Cutaneous Leishmaniasis (oriental sore) can occur in both the Old World including (Europe, Asia, and Africa) and the New World...
including (the Americas). The currently biggest focus for the disease in Afghanistan, the infection is also endemic in Pakistan, Iraq, the western deserts of India, Syria, Iran, and other areas of the Middle East countries. In recent years, there has been a noticeable increase in the incidence of zoonotic CL in both the Old and the New Worlds, and the peridomestic transmission of CL to humans can occur due to many factors especially urbanization and deforestation.³ This descriptive study was designed to describe epidemiological aspects of cutaneous leishmaniasis in Wasit province in Iraq in 2018, which include distribution of CL among gender, age groups, occupation, residency, seasons, and primary healthcare districts in order to stand on the variation in disease frequency among people according to time and place in Wasit province to make a suitable plan and develop policies for prevention.

MATERIALS AND METHODS

This retrospective cross-sectional study was carried out in all of the urban and rural regions of Wasit province in Iraq. After obtaining ethical approval from the college of medicine, data on human cases of cutaneous leishmaniasis were supplied from records of communicable disease section/public health department/Wasit health directorate. All registered cases during 2018 were included in the study, and then data computerized and analyzed using SPSS version 23 using frequency tables for the selected variables under study.

RESULTS

Frequency distribution of patient’s features with cutaneous leishmaniasis in 2018 in Wasit province showed in this study. Table (1) found that both sexes slightly similar in their liability to get the disease, the disease is more frequent in childhood especially below 10 which represents 47.6% of all cases with a relatively higher percentage in school and preschool patients. Patients living in rural regions took the highest percentage of infection which reached 62.5% of all cases. Only 13.7% and 25.3% of the patients reported contact with infected family members or animals respectively.

Table 1: Frequency distribution of characteristic features of the patients.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>201</td>
<td>50.9</td>
</tr>
<tr>
<td>Female</td>
<td>194</td>
<td>49.1</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;10</td>
<td>188</td>
<td>47.6</td>
</tr>
<tr>
<td>10-25</td>
<td>112</td>
<td>28.4</td>
</tr>
<tr>
<td>25-40</td>
<td>49</td>
<td>12.4</td>
</tr>
<tr>
<td>40-55</td>
<td>29</td>
<td>7.3</td>
</tr>
<tr>
<td>55-70</td>
<td>12</td>
<td>3.0</td>
</tr>
<tr>
<td>&gt;70</td>
<td>5</td>
<td>1.3</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preschool child</td>
<td>119</td>
<td>30.1</td>
</tr>
<tr>
<td>Student</td>
<td>142</td>
<td>35.9</td>
</tr>
<tr>
<td>Employer</td>
<td>23</td>
<td>5.8</td>
</tr>
<tr>
<td></td>
<td>Free work</td>
<td>56</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------</td>
<td>----</td>
</tr>
<tr>
<td>Unemployed</td>
<td></td>
<td>55</td>
</tr>
<tr>
<td>Residency</td>
<td>Urban</td>
<td>148</td>
</tr>
<tr>
<td></td>
<td>Rural</td>
<td>247</td>
</tr>
<tr>
<td>No. of lesions</td>
<td>Single</td>
<td>220</td>
</tr>
<tr>
<td></td>
<td>Multiple</td>
<td>175</td>
</tr>
<tr>
<td>Contact with infected family member</td>
<td>Yes</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>241</td>
</tr>
<tr>
<td>Contact with domestic animals</td>
<td>Yes</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>295</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>395</td>
</tr>
</tbody>
</table>

In the table (2) the highest percentage of cases occurred during (November through February), while the least months were May and June.

Table2: Time distribution of disease occurrence

<table>
<thead>
<tr>
<th>Months</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>68</td>
<td>17.2</td>
</tr>
<tr>
<td>February</td>
<td>62</td>
<td>15.7</td>
</tr>
<tr>
<td>March</td>
<td>45</td>
<td>11.4</td>
</tr>
<tr>
<td>April</td>
<td>19</td>
<td>4.8</td>
</tr>
<tr>
<td>May</td>
<td>6</td>
<td>1.5</td>
</tr>
<tr>
<td>June</td>
<td>6</td>
<td>1.5</td>
</tr>
<tr>
<td>July</td>
<td>9</td>
<td>2.3</td>
</tr>
<tr>
<td>August</td>
<td>7</td>
<td>1.8</td>
</tr>
<tr>
<td>September</td>
<td>19</td>
<td>4.8</td>
</tr>
<tr>
<td>October</td>
<td>22</td>
<td>5.6</td>
</tr>
<tr>
<td>November</td>
<td>73</td>
<td>18.5</td>
</tr>
<tr>
<td>December</td>
<td>59</td>
<td>14.9</td>
</tr>
<tr>
<td>Total</td>
<td>395</td>
<td>100.0</td>
</tr>
</tbody>
</table>

AL- Kut1 district was at the top of the number of cases regarding the registered patients relative to other health districts in Wasit province followed by AL- Kut2 district (30.1%) as mentioned in table 3.
DISCUSSION

*Leishmania* infection is widely spread as an endemic disease in over 98 countries scattered on five continents. Overall, the world, it is estimated that about 0.7 to 1.2 million new cases of cutaneous leishmaniasis (CL) per year with approximately 75 percent of all cases were reported from 10 countries, considering Iraq one of them. The age distribution of CL patients in this study showed the highest percent in those less than 10 years old with the lowest percent in old age patients (>70) years old, probably because younger individuals spend more time in outdoor activities in contrast to the old population. Further, *L.* tropical infections result in the development of life-time immunity, which may contribute to a lower incidence in the oldest age groups. This result agreed with a study done in all Iraqi governorates in 2017. Regarding gender, there was a slight difference between males and females in the distribution of disease and this may be due to the effect of sex hormones. Protective immunity towards cutaneous leishmaniasis is controlled by Th1 responses, while Th2 responses have been related to susceptibility and disease progression. Because testosterone activates production of Th2 cytokines and estrogen stimulates pro-inflammatory Th1 responses, levels of sex hormone may cause this sexual dimorphism in disease outcome. In this study, the disease appeared to be more prevalent in rural areas than urban areas which may be due to the presence of a reservoir (rodent and dogs) in rural areas and spending more time exposed outside the home, in addition to home style that is less close. This result agrees with studies done in different Iraqi governorates. Regarding number of lesions, it was single in more than half of patients and this is in contrast to a study done in Tikrit in Iraq in period between (2004-2005) may be due to the ignorance of disease and delay in seeking for medical consultation, also poor level of compliance to treatment could be a consequence to low level of health awareness especially in Wasit rural patients. In this study, the result found that a quarter of patients reveal the presence of reservoir animals nearby and the largest portion of patients decline the presence of it nearby, even so, the infection may occur due to increased anthropogenic transmission owing to rapid urbanization. This study found that CL was more abundant in the winter season with the highest number of cases in November and January. Disease incidence starts to decline in March to reach its lowest in June and August, this is because the sandflies season in Iraq is from April through November and peaks in September–October. The incubation period of *Leishmania* is typically between 2–6 months. When the sandfly bites a
host in September or October, cases would become apparent in January or February.\textsuperscript{13} This result agreed with the result accomplished in Iran.\textsuperscript{14} Regarding the distribution of CL in Wasit primary healthcare districts, most cases occurrence was in Al-Kutone and two primary healthcare districts followed by Al-Aziziy, Al-Numania then Al-Swaira and Al-Hay. This largest portion of cases in AL-Kut health district may be due to its large population size and presence of many rural villages around it also the ease of accessibility of health centers.

CONCLUSION

Cutaneous leishmaniasis affected a large number of population in Wasit. Affecting younger age groups mostly, and males being affected slightly more than females. Among residency, it was more prevalent in rural areas because of the presence of sandflies and vectors and lifestyle habits including sleeping outdoors.

RECOMMENDATIONS

The most important recommendation of this study is to increase the general awareness of the population about this disease, how it could be transmitted and ways of prevention. In addition to emphasizing early visits to primary care centers in case of appearance of any lesion. Increase measures of prevention like fogging and try to washout reservoir animals in Wasit. Special concern for patients living in rural regions with high risk approaches for prevention.

ACKNOWLEDGMENT

To Wasit Health Directorate, Public Health Department, Communicable Disease Control section.

ETHICAL CLEARANCE

The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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REFERENCES