PREVALENCE OF CUTANEOUS LEISHMANIASIS AMONG REFUGEE CAMPS IN SALAHDEEN PROVINCE, IRAQ

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ABSTRACT
Leishmaniasis, a vector-borne protozoan parasitic diseases endemic to 88 countries worldwide and is a source of significant public health concern. The aim of the study was to paid attention to the high prevalence of cutaneous leishmaniasis (CL) between refugee in Salahuddin province’s camps after the beginning of the civil war in Iraq in 2014. Since January to March 2015, records for cases of cutaneous leishmaniasis (CL) were collected from the United Nations Refugee Agency (UNHCR) in Iraq from three camps in Salahuddin province (Tal-Alsebat, Al-Shhama and Dream city). A total of 333 cases diagnosed with (CL) based on the clinical manifestations and traditional microscopic examination. Positive cases were evaluated in terms of residence, age and gender, lesion’s location, presence of single or multiple lesions, number of individual within the family, and outcome, as well as the socioeconomic and environmental state. The high rate of infection was in Tal-Alsebat camp (63.9%). Most patients (73.6%) were <10 years of age. No significant differences between male and female. Lesions are more frequently observed on the face, neck and hands (66%).

INTRODUCTION
Leishmania is the most important protozoan infection in the Middle East region (WHO, 2012). There are three important forms of leishmaniasis (cutaneous, mucocutaneous, and visceral) that are transmitted by sandfly (Herwaldt, 1999). Leishmania tropica is a parasite of cutaneous leishmaniasis (CL) in central Asia, and Middle East, including Iraq (Postigo, 2010).

Several risk factors play an important role in increased frequency of infection, environmental variations and habits of societies (Khan and Muneeb, 2005), but the most significant are those associated with wars, population clustering and moving and migration of susceptible populations, resulting in the exposure of unimmunized individuals to the parasite (Douba et al., 1997).

Among the different regions in Iraq, Salahuddin is known to have high prevalence of CL (Al-Warid et al., 2017). After 2014 events in this province and because of a different war-related factors, new outbreaks have been reported, especially in the refugees’ camps. In this study, we assessed the current leishmaniasis situation between refugees in three camps in Salahuddin province.

MATERIALS AND METHODS
Records from the United Nations Refugee Agency (UNHCR) were reviewed for cases of leishmaniasis from three camps (Tal-Alsebat, Al-Shhama and Dream city) in Salahuddin province reported between January to March 2015. All cases reported were reviewed in terms of age, gender, clinical presentation, presence of single or multiple lesions and number of individual within the family, treatment, and outcome, as well as the socioeconomic and environmental state were collected at the refugee camps. In addition to clinical manifestations, microscopic confirmation was obtained by taking smears of skin lesion, air dried, fixed with methanol, and stained with Giemsa stain, figure (1) (Schnur and Jacobson 1987).

RESULTS
Most infection cases were in Tal-Alsebat camp 63.9% while in Al-Shhama and Dream city camps
were 31.2% and 4.8% respectively. 73.6% patients were <10 years of age. Each family comprised (3–15) members, and the percentage of family members infected ranged from 12% to 94.6%. No significant differences between male and female. Lesions are more frequently observed on the face neck and hands 66%. (Table 1)

Table 1: Distribution of Leishmania cases according to some infection characteristics.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Number of cases</th>
<th>Percentage %</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-10</td>
<td>245</td>
<td>73.6</td>
<td></td>
</tr>
<tr>
<td>11-20</td>
<td>81</td>
<td>24.3</td>
<td></td>
</tr>
<tr>
<td>21-30</td>
<td>5</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>31&lt;</td>
<td>2</td>
<td>0.6</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number of cases</th>
<th>Percentage %</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>149</td>
<td>44.7</td>
<td></td>
</tr>
<tr>
<td>female</td>
<td>184</td>
<td>55.3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cite of ulcer</th>
<th>Number of cases</th>
<th>Percentage %</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face, neck and upper limbs</td>
<td>220</td>
<td>66</td>
<td>0.04</td>
</tr>
<tr>
<td>Lower limbs</td>
<td>113</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>333</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 1:** Leishmania tropica, amastigote stained with Giemsa stain 100X

**Figure 2:** Iraqi refugees in temporary, unhygienic, which are breeding lands for disease and different vectors, Salahuddin province, Iraq, 2015.
DISCUSSION

In recent years, results of many researches have begun to identify the impacts of wars and conflict on global health outcomes and infectious diseases appearance (Desjeux, 2001; Kerridge et al., 2012). Vector borne diseases, such as leishmaniasis may be propagated in many regions as a result of various social and healthcare system failures, including: movement of population, shortage in health programs, neglect in medical care, and the demolition of health-related substructure (Iqbal, 2006; Kerridge et al., 2012).

There are many factors that play critical roles in the incidence of CL in different parts of Salahuddin province after 2014 events particularly, in refugee camps. Those camps had mainly provisional houses of tents, equipped with inadequate sanitation, waste disposal, and insulation (figure 2). Such conditions are ideal for vectors of Leishmania tropica (Killick-Kendrick et al., 1995) and significant in propagating disease within human populations. Crowding, destitution, stress, malnutrition and weakened immunity are all risk factors for CL (Beyrer et al., 2007). The small rodents and dogs are the reservoir hosts for Leishmania (Murray, 2005), which are out of control in those camps. This record agreed with the outbreaks in refugee camps in many countries as in Kabul, Afghanistan (Rowland et al., 1999, Reithinger et al., 2010) and in Syria (Maya et al., 2014).

Result, according the age distribution of those infected with Leishmania, has been inclined towards the younger age groups with a significant difference and this result agreed with (Rahi, 2011). There were no significant differences between male and female, both sex lived in the same place and have the same opportunity to expose to sandfly-associated environmental conditions (Kumar et al., 2007).

The face, neck and upper limbs were the higher parts of lesions localized in infected individual especially in children (66%) and lower limbs (34%) figure (3). This could be correlated with the feeding hours of sand fly, which is more active at the time when young children are sleeping and these body parts are more exposed to vector feeding (Romero et al., 2010).

CONFLICT OF INTEREST

The authors declare no conflicts of interest and no affiliation with companies or institutions that could benefit from this study.

REFERENCES


انتشار داء اللمتاميا الجلذية بين مخيمات اللاجئين في محافظة صلاح الدين / العراق

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داء اللمتاميا من الأمراض التي تسببها الأعالي الطفيلية وتنتقل بواسطة ناقل مفصلي، حيث يت分布式 في 88 دولة حول العالم ويجري باعتبارها منظمات الصحة العالمية تهدف الدراسة الحالية إلى ضبط الوضع على الانتشار العالمي لأداء اللمتاميا الجلذية بين اللاجئين في المحافظات في محافظة صلاح الدين والذي أقيم بعد الهاجمات الإرهابية في العراق في عام 2014 م.

منذ شهار كانون الثاني وغابياً شهر آذار 2015، جمعت تسجيلات مؤثرة من جمعية المم المتحدة لشؤون اللاجئين في العراق لحالات أصابة بداء اللمتاميا الجلذية في ثلاثية مخيمات اللاجئين (تل السيبال، الشاماء، ودرع شبي) تم جمع 323 حالة من أشخاص شتبه بحالهم بداء اللمتاميا الجلذية حيث نقلت الحضور المهاجرين الحركة للاصابات. معظم حالات الإصابة كانت في مجمعتين السيبال ودرع شبي (63%). أعلى حالات الإصابة بين المسلمين الذين كانت أعمارهم دون العاملة 73.6% (66%).

الكلمات المفتاحية: اللمتاميا الجلذية، اللاجئين، العراق

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