

The Incidence Rate of Cutaneous Leishmaniasis in Behbahan County of Khuzestan Province, Southwest of Iran

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Cutaneous leishmaniasis (CL) or Oriental sore is a main public health problem in various regions of Iran. Phlebotomine sand flies are the vectors of leishmaniasis and papatasi fever in Iran (1, 2). CL due to *Leishmania major* is still a great and increasing public health problem in many rural areas of 15 out of 31 provinces of Iran (2). The predominant species of oriental sore in Khuzestan Province is *L. major* (3, 4). As the epidemiological aspects of CL in Behbahan county has not been examined in recent years for the implementation of future control measures as in order to control the disease more effectively and organize a control program, basic information is needed to be determined.

Clinical samples were consisting of all confirmed cases that referred to all health centers of Behbahan county, from 2004 until 2008 with the symptoms of leishmaniasis and presence of amastigotes in Giemsa-stained smears. For each patient in all counties, the demographic and epidemiologic features, including patient's sex, age, clinical signs, including the number of scars and its location in the body, month of diseases occurrence, incidence rate, and geographical regions were recorded by interviewing patients. Data were analyzed by using SPSS version 11.0.1.

A total number of 172 positive cases of CL were reported in the county, during 2004-2008, of which 95 (55.2%) were male, while females accounted for 77 (44.8%). Out of 172 positive cases of CL, 81 patients (47.1%) resided in urban areas, while 91 (52.9%) lived in rural areas. Analysis of the ulcers distribution in the body showed that most of the lesions, including 32% cases were observed on hands, 31.4% cases on feet, 19.2% on face and 17.4% cases were observed on other parts of the body. Majority of the patients

had only one ulcer (n = 84, 48.8%), 34 (19.8%), 26 (15.1%), 28 (16.3%) cases exhibited two ulcers, three and more than three ulcers on their body, respectively. Highest disease prevalence (n = 39) was observed in February. The highest disease prevalence was in winter, so that 88 of the disease cases had occurred in this season. The most frequent cases of CL were observed significantly in the age group of 20-29 years old (27.3%) and the least prevalence was observed in the age group of 40-49 years old. The year of 2006 had the most prevalent cases of CL (with 43 cases) in the county. The incidence of the disease in Behbahan county, during 2004-2008 were 0.12, 0.17, 0.22, 0.7 and 0.20, respectively.

In this study, there was a relationship between gender and the incidence of disease and disease were seen more in men in comparison to women. The reason was that more men work or sleep in open areas and also due to men's less covering than women and more exposure to the infected sand flies. The most anatomical sites for lesions concentration were on the hands. Repartition of CL positive cases according to age was also in agreement with previous findings (5, 6), that's in general CL affect more cases in 20-29 years old adult.

Other studies have shown that most highly infected age group with CL is person of ≤ 20 years old (7, 8). The reason for this fact is that adults have developed resistance to CL due to their previous exposure to the parasite. The age-group of 20-29 years old included patients who mostly spend their time on farms and orchards at night without self-protection (9, 10). The prevalence of CL had remarkable changes in the different months of year, and the highest rate was observed in February. In the present study, the highest prevalence was in winter. The reason

Implication for health policy/practice/research/medical education:

The role of cultural and demographic factors well has been described in prevalence of Cutaneous Leishmaniasis (CL) that is very important in the control of CL in Behbahan County and Iran. The study area has an important strategic position, bordering with Iraq country too.

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of this fact was related to the activity of the sand flies. Results of this study showed that most ulcers (32%) were in hands which were similar to the results of other studies (11-13). In most cases, these parts of the body are unprotected and because sand flies are not capable of sucking the blood through clothes due to having short mouth appendices and mostly attack open and unprotected parts of the body (10, 14).

Results showed that 48.8% of the cases had only one ulcer on their bodies. The reason of this was because in one biting sand flies complete their feeding (10, 14). With regard to the findings of this study, it could be concluded that CL is posed as a health problem in Behbahan county. Regarding the results of several studies from different parts of Iran, molecular study on cutaneous leishmaniasis lesions in this county is necessary (15, 16). Therefore, planning for the disease control and taking appropriate measures to reduce the incidence of the disease are necessary.

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Authors' Contribution:

Hamid Kassiri developed the original idea and the protocol, abstracted and analyzed data. Hamid Kassiri and Khadijeh Shemshad wrote the manuscript. Samaneh Shojaei contributed to the development of the protocol and abstracted the data.

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