



Prevalence of Cutaneous Leishmaniasis in Ramshir, Iran; an Epidemiological Study

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ABSTRACT

Aims Cutaneous leishmaniasis is a prevalent parasitological disease with diverse clinical manifestations in Iran. Therefore, the present retrospective study carried out to describe the demographic features of cutaneous leishmaniasis in Ramshir, Iran.

Materials & Methods This descriptive study was performed on 136 cutaneous leishmaniasis patients whose data were recorded in the Ramshir health center during 2006-9. Demographic information of patients including age, sex, habitat and sites of lesions, month and years of incidence were recorded. The data were analyzed by SPSS 16 software.

Findings Totally 79 patients (58.1%) resided in urban areas and the born to 9 years (49.3%) was recognized as the most infected age group. Hands (41.2%) had the highest rates of cutaneous leishmaniasis lesions followed by face (36.0%) and foot (22.8%). The maximum number of cutaneous leishmaniasis lesions was reported in March.

Conclusion As cutaneous leishmaniasis in Ramshir seemed to be an endemic rural type, the appropriate preventing measures regarding to the rural cutaneous leishmaniasis should be considered to decrease incidence of the disease in the region.

Keywords Epidemiology; Leishmaniasis, Cutaneous; Parasites; Endemic Diseases

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Introduction

Leishmaniasis is one of the six important tropical diseases and its different aspects recommended as research studies by World Health Organization [1, 2]. Three forms of Leishmaniasis including Zoonotic Cutaneous Leishmaniasis (ZCL), Anthroponotic Cutaneous Leishmaniasis (ACL) and Visceral Leishmaniasis (VL) have been caused some health and medical problems related to humans and animals in Iran, Iraq, Afghanistan and Pakistan [3-6]. Cutaneous Leishmaniasis (CL) is one of the most important zoonotic diseases, which is caused by several species of *Leishmania* as protozoan parasites [1]. Annually, about 1 to 1.5 million new cases of CL are reported globally, of which 90% is belonged to Iran, Syria, Afghanistan, Saudi Arabia, Algeria, Brazil and Peru [2-5]. In Iran, CL is found in two forms of dry (urban) and wet (rural). The former is caused by *Leishmania major* and rodents are considered as reservoirs. The main vector of the disease is *Phlebotomus papatasi* sand fly. The latter is caused by *Leishmania tropica* and the main reservoirs are human and dog. The major vector is *Phlebotomus sergenti* sand fly [6-9].

About 20,000 cases of CL are reported from different parts of Iran annually but the actual amount is several times higher [7, 10]. The disease is endemic in 15 provinces. It has been created the active foci in some areas in the recent years due to favorable climatic and ecologic conditions for its vectors and reservoirs [11]. Studies in Damghan [2], Poledokhtar [12], Kashan [13] and Ardakan [14] have confirmed that epidemiological characteristics of the disease are different in the various foci. Khuzestan province is one of the important endemic areas of CL in Iran [15-21]. In the first two years of Iran vs. Iraq war (1980-1988), thousands of CL cases appeared among soldiers and paramilitary men who were sent to the war front in the southwest [22, 23]. Estimations show an increase in ZCL cases in different regions of Khuzestan including western districts, Southern West of Iran among the human population during past decade [16, 23].

ZCL is the most frequent and endemic form of leishmaniasis in Iran (about 80% of reported cases in Iran), including west (Ilam province) and south-west (Khuzestan province) foci [24]. During the past decade, increasing in the

rate of ZCL cases among the human population in different regions of Khuzestan province, Iran, including western districts was reported [16, 23]. Recent studies of Kassiri *et al.* [20] in Khoramshahr and Behbahani *et al.* in Omidieh (cities in Khuzestan province, Iran) have supported the claimed increasing [20, 21]. As the latest molecular leishmaniasis study in Khuzestan province, Vazirianzadeh *et al.* [25] have isolated *Leishmania major* from both reservoir and vector, *Tatera indica* (Rodentia: Gerbillidae) and *Phlebotomus papatasi* at the same time from Roffaye area at the west of Khuzestan province [25].

The Ramshir district (1728km²; 51,081 population approximately) lies in the south of Khuzestan Province. It is surrounded by Ramhormoz, Ahvaz, Omidieh and Mahshahr districts. The weather is hot in summer and is moderate in winter. The basic data of CL and effective factors on it are essential measures to make a plan regards restricting the disease in the area of Ramshir.

Therefore, the present retrospective study carried out to describe the demographic features of CL in Ramshir, Iran.

Materials & Methods

The population of this descriptive study was all 136 patients with diagnosis of CL who were under therapy and follow-up between April 2006 and March 2009 referred to the health center of Ramshir City. Clinical and laboratory approval and information about them were recorded by the staff of the center in the form of summary information on the epidemiology.

The required demographic data pertaining to each patient including age, sex, place of residence (urban or rural), history of disease and site of lesions were compiled in a checklist. Data was analyzed using SPSS 16 software.

Findings

73 (53.7%) patients were males and 79 (58.1%) lived in the urban areas. The born to 9 years age group (49.3%) was recognized as the most infected and the 30-39 years age group as the least infected.

The maximum number of CL lesions was reported in March (Sum if the 3 years) with 22 patients (16.2%) and the minimum number

was recorded in August (Sum if the 3 years) with 3 patients (2.2%) (Figure 1).

Hands (41.2%) had the highest rates of CL lesions followed by face (36.0%) and foot (22.8%).

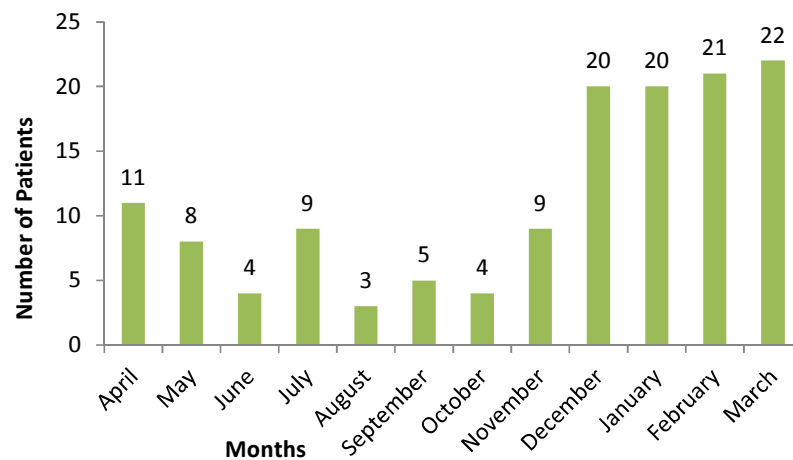


Figure 1 Number of reported CL patients by month of occurrence (Sum of the 3 years) in Ramshir city, Khuzistan province, Iran in 2006-9

Discussion

The present study aimed to investigate the status of CL in Ramshir during 2006-2009. Characterizing the demographic information of CL patients would be valuable in better understanding the epidemiology and ecology of Leishmaniasis. This will provide basic epidemiological information to make programs to control its vector and reservoir in order to reduce the incidence of CL in the region [26, 27].

Incidence of CL was greater among men than women. These results are consistent with the results of studies in Damghan [2], Kashan [13], Khorramshahr [20], Omidieh [21], Kermanshah [27], Hamedan [28] and Gorgan [29]. Since men work in the farms, subsequently the likelihood of being bitten by the sand fly vectors of the disease is more [14]. But it is inconsistent with the results of studies in Poledokhtar [12], Gonbad-e-Kavoos [30], Bam [31] and Larestan [32]. It is assumed that this difference between two aforementioned groups of studies regarding frequencies of CL cases has come from different cultural behavior in each area and ecological (geographical area and climate) characters in each area of study.

Although urban areas are not very distinguishable from rural areas in Ramshir,

as they have similar background from point of cultural, structural and social points, but frequencies of CL in urban areas were greater than rural areas. These results are consistent with the results of studies in Khorramshahr [20], Omidieh [21], Hamedan [28] and Gorgan [29], but they are inconsistent with studies in Damghan [2], Poledokhtar [12], Kashan [13] and Larestan [32]. However, urban areas are not very distinguishable from rural areas in Ramshir and they have similar cultural, structural and social backgrounds. Abundant cases in the rural areas in these studies are assumed to be due to the availability of the favorable condition of vectors and reservoirs in rural area and accordingly the increased likelihood of human contact with infected sand flies. It is noteworthy that no study has been performed about vectors and reservoirs of cutaneous leishmaniasis in Ramshir district yet.

Most cases of CL happened within the age group of born-9, which it is consistent with the studies in Omidieh [21], and Larestan [32]; but in some studies [2, 12, 13, 27-30] other age groups had the highest incidence. The most age groups in the studies of Damghan [2], Poledokhtar [12], Kashan [13] and Kermanshah [27] were determined at 20-29 year old and in Hamdan [28], Gorgan [29]

and Gonbad-e-Kabous [30] studies at 15-24, 20-49 and 11-20 years old, respectively.

In urban areas, the frequency of CL cases is constant during the year and little seasonal variations are seen [22], but in rural areas, foci of CL, most cases are seen in autumn and winter [21]. The highest incidence of CL occurred in winter and autumn (about 65% of the cases of CL in Ramshir district have been reported in the second half of a year), which they are consistent with the results of studies in Damghan [2], Poledokhtar [12], Khorramshahr [20], Kermanshah [27], Gorgan [29] and Bushehr [33], indicating being the dominant rural type of the disease in this area but against to the studies in Omidieh [21] and Bam [31] where urban CL is prevalent.

The majority of sand fly bites happened in the hands and feet which is similar to the other related studies in Iran [2, 12, 13, 27-30]. However, it is not consistent to the study of Bam, which the faces were recorded as the most infected organ [31].

Several studies indicate that rural CL is dominant in the Khuzestan [16, 34-36]; So, the program for fighting CL in Khuzestan and Ramshir should be implemented according to the type of CL. It should be noted that one of the characteristics of rural type of CL is that often the lesions in the hands and feet [7]. Most of the lesions (64%) were in the hands and feet, and for this respect, the disease pattern is very similar to patients in the endemic regions of rural type of CL [2, 12, 13, 27-30]. CL is prevalent in Khuzestan province [37].

Of limitations of this study were the place of study i.e. Ramshir, as a semi-rural region has no perfect difference between a rural and an urban area regarding the buildings characters and the recorded data in the Health Center of Ramshir.

Insecticide spraying the buildings, education programs among the residences and clearance of the living area of the residents as the recorded data are suggested to promote the disease control agendas.

Conclusion

As CL in Ramshir is seemed to be an endemic rural type, the appropriate preventing measures regarding to the rural CL should be considered to decrease incidence of the disease in the region.

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