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A 5-year period (2010–2014) retrospective study of human cutaneous leishmaniasis in Ahvaz County, southwest of Iran

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ABSTRACT

Objective: To evaluate the epidemiology of cutaneous leishmaniasis in Ahvaz County, capital of Khuzestan Province, and southwest of Iran over a 5-year period. Since Khuzestan Province is endemic for this disease.

Methods: This is a retrospective study of cutaneous leishmaniasis cases from 2010 to 2014 referred to health care centers of Ahvaz County.

Results: A total of 242 cases were studied. Out of which 59.1% were males and 40.9% were females. About 79.8% of patients resided in urban areas and 20.2% resided in rural areas. Frequencies during the years 2010, 2011, 2012, 2013 and 2014 were 8.7%, 33.5%, 44.1%, 9.9% and 35.5%, respectively. The maximum number of cutaneous leishmaniasis patients was observed in winter. About 47.1% of lesions were on hands, 18.2% on feet, 11.6% on face, 21.5% on two organs and 1.7% on more than two organs.

Conclusions: In this study 59.1% of patients were males and this may be due to their job, more contact with *Leishmania* vectors and wearing fewer cloths. Most of the lesions were placed in hands, feet and face. Therefore the necessity of choosing the appropriate clothing, using mosquito nets seem to be important.

1. Introduction

Leishmaniasis is a tropical disease resulted from a protozoan parasite from *Leishmania* Species[1]. Leishmaniasis has different forms including cutaneous leishmaniasis, visceral leishmaniasis, post kala-azar dermal leishmaniasis and diffuse cutaneous leishmaniasis. Visceral leishmaniasis is the most serious form of leishmaniasis and sometimes leads to death if untreated. Cutaneous leishmaniasis is a public health problem and if lesions are multiple it seems to be dangerous. Cutaneous leishmaniasis in old world is divided to two parts: anthroponotic cutaneous leishmaniasis and zoonotic cutaneous leishmaniasis. Anthroponotic

cutaneous leishmaniasis in old world in urban regions is due to *Leishmania tropica* and zoonotic cutaneous leishmaniasis is caused by *Leishmania major*, *Leishmania aetiologica*, and *Leishmania infantum*[2,3]. The first case of cutaneous leishmaniasis dated back the 9th century and was called Balkh sore and still is a major health problem in 21th century. Cutaneous leishmaniasis can be ranged from a small skin ulcer to severe mucosal and nasopharynx involvement[4]. First-line drugs for the treatment of the disease are pentavalent antimonial compounds, such as meglumine antimonate (Glucantime®) and sodium stibogluconate (Pentostam), which have been utilized since the 1940s until the present. As of yet, there is a lack of effective vaccines against leishmaniasis[5,6]. The main vector of anthroponotic cutaneous leishmaniasis is *Phlebotomus sergenti* and the vector in the case of zoonotic cutaneous leishmaniasis is *Phlebotomus papatasi*[7]. About 350 million people are at risk of cutaneous leishmaniasis worldwide and disease is reported from 100 countries. The prevalence rate is estimated about 12 million people around the world and the incidence rate is 2 million people per year. About 90% of cutaneous leishmaniasis is reported from

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Afghanistan, Algeria, Iran, Iraq, Saudi Arabia, Syria, Brazil, and Peru[8]. Twenty thousand new cases of cutaneous leishmaniasis are reported from different parts of Iran annually but probably exact rate of disease is more than this reported amount[9]. The prevalence rate in different areas of Iran is estimated from 1.8% to 37.9%[10]. Anthroponotic cutaneous leishmaniasis caused by *Leishmania tropica* is reported from Tehran, Shiraz, Mashhad, Neishaboor, and Kerman, Bam, Rafsanjan and Khomeyni Shahr. Zoonotic cutaneous leishmaniasis caused by *Leishmania major* is exist in Isfahan, Sarakhs, Lotfabad, Khuzestan, Kashmar, Kashan, Dehloran and Damghan[3,11]. Cutaneous leishmaniasis is endemic in Khuzestan Province and is locally known as Okhet (sister). Therefore this study was discussed the epidemiology of the disease in the Ahvaz County, capital of Khuzestan Province, southwest of Iran over a 5-year period.

2. Material and methods

This is a descriptive, retrospective study and was carried out by referring to registries in center of leishmaniasis diagnosis in east health centers of Ahvaz County. After being examined by a physician in the health center, all the patients provided informed consents. Diagnosis was based on preparing slides from lesions of patients, Giemsa staining and observing for Leishman bodies under light microscope. Recorded information of 242 patients during five years (2010–2014) was studied. The data including the number of positive smears according to gender, season, year, location of mosquito bite, urban and rural infected people. Data were entered in a Microsoft Access 2013 file and were analyzed by SPSS 21 software.

3. Results

Over five years from 2010 to 2014, a total of 242 patients were diagnosed with cutaneous leishmaniasis. Out of which 143 (59.1%) people were males and 99 (40.9%) people were females. One hundred and ninety-three (79.8%) of patients were living in urban regions and 49 (20.2%) of them were in rural areas. Based on registered information, the prevalence rates in 2010, 2011, 2012, 2013, 2014 were 8.7% (21 cases), 33.5% (81 cases), 44.1% (30 cases), 9.9% (24 cases) and 35.5% (86 cases) respectively. The minimum rate of referring to health centers was in summer 3.7% (9 cases) and the maximum was in winter 69.0% (167 cases), and this rate in spring was 5.0% (12 cases) and in autumn was 22.3% (54 cases). One hundred and fourteen of lesions (47.1%) were on hands, 44 of them (18.2%) were on feet, 28 lesions (11.6%) were on face, 52 of lesions (21.5%) were on two parts of body and 4 of them (1.7%) were placed on more than two parts of body.

4. Discussion

This retrospective study was carried out in order to determine the prevalence rate of leishmaniasis in Ahvaz during five years

(2010–2014). Today, cutaneous leishmaniasis is known as one of the most important health challenges in the world. It is also a serious health issue in Middle East and Iran. The prevalence rate of cutaneous leishmaniasis is reported high in Iran due to common board with Iraq, Pakistan and Afghanistan and some of the patients in our country are migrants from these countries[8]. The maximum rate of prevalence in this 5-year study was in year of 2012 (44.1%) and the minimum rate of it was in 2010 (8.7%). The prevalence rate in the year of 2011 was 33.5%, in 2013 was 9.9% and in 2014 was 35.5%. In current study, 59.1% of patients were males and 40.9% of them were females, these findings are consistent with the results in Genave[12], Qom and Shiraz[13], Isfahan[11], Tehran[14], Damghan[15], Kashan[16], Kermanshah[17], Omidie[18], Iraq[19] and this may be because of type of their occupation and wearing and more exposure to sand fly vectors, but these results are incompatible with studies in Poldokhtar[20], Bam[21], Mir java[22], and Pakistan[23], probably because of cultural differences and climates characters. About 79.8% of patients were living in urban areas while 20.2% were in rural areas. These findings were compatible with results of studies in Damghan[24], Omidie[18] and Hamedan[25], while results in Kashan[26], Shoushtar[27] and Genave[12] showed that most of the patients were in rural areas where people are more close to vectors of *Leishmania*. Most of patients referred to health centers in winter (69.0%) followed by autumn (22.3%), spring (5.0%) and summer (3.7%), similar results were observed in Khoram shahr[28] and Poldokhtar[20] while in a study in Isfahan[11], most of cases occurred in summer since disease transmission from reservoirs to people take place at the end of the vector seasonal activity and after one week to two months, the lesions reveal in patients[12]. The location of Lesions is different in studies due to type of feed bleeding in mosquito, wearing and clothing culture and climate changes[8]. In our study, 47.1% of lesions were placed on hands, 18.2% on feet, 11.6% on face, 21.5% were on two parts of body and 1.7% of lesions were on more than two parts of body, therefore 66.9% of lesions were located on hands, feet and face similar to the finding of other studies in Iran[17,20,25] because these locations has less covering and are more available for mosquitos. In a research performed in Brazil, 34% of lesions were reported on feet and it is resulted from their special culture of wearing[29].

Finally, based on the current study and other studies in recent years, it can be concluded that cutaneous leishmaniasis is endemic in Khuzestan Province and the prevalence rate is partially high so it seems that special considerations must be taken including inform the people who live in risky areas about transition cycle of disease and clothing for example at work. Also prevention principles against reservoir hosts (rodents) should be performed carefully. On time diagnosis and treatment should be considered.

Conflict of interest statement

We declare that we have no conflict of interest.

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