

Epidemiology of cutaneous leishmaniasis in hormozgan province (2007-2011)

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Abstract: Leishmaniasis is an important zoonosis which is a major issue in tropical areas. Knowing the epidemiology of this disease and epidemiological factors influencing the incidence of this disease, helps to program the health issues involved in prevention of this disease. A retrospective study was performed on all known cases of Leishmaniasis from 2007-2011 in Hormozgan province, a southern province in Iran. The results show that the men were more infected than women, and the rural dwellers were more infected. The disease was more reported in winter and spring. Regarding the pattern of the disease and epidemiological distribution, health programs should be designed to educate the residing population in the susceptible areas to minimize the disease transmission and reduce the infection.

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1. Introduction

Leishmaniasis is one of the important zoonosis presented in cutaneous, visceral, or mucocutaneous forms. (1)Cutaneous leishmaniasis is a major issue in tropical areas, and about 350 million people are exposed and 1.5 million get infected annually(4,5). And these new cases are reported from different parts of world, causing this disease to become one of the top health priorities of WHO (13). Ninety percent of the cases are reported from Afghanistan, Algeria, Brazil, Iran, Peru and Saudi Arabia. (6, 7, 8).

Cutaneous leishmaniasis is often reported as an epidemiological burden from most provinces, and the foci show an increasing trend in different areas of the country. Rural form is reported in Khuzestan province, Baft, Esfahan, Serakhs, Shiraz, Kashmar and suburbs of Kashan, and the urban form is reported from Bam, Mashad, Kermanshah, Shiraz, Tehran, Esfahan, Neishaboor, Rafsenjan, and Sabzavar.(9, 10)

Leishmaniasis is one of the important native disease and the second parasite infection after malaria; and approximately 20000 cases of cutaneous leishmaniasis are reported from different parts of Iran, and it should be kept in mind that the actual rate of leishmaniasis is much more than the reported rate. (1, 2)

Studies have shown that actual rate of leishmaniasis in Iran is 4-5 fold of annual report(3). In order to access comprehensive and complete

information of effective factors in epidemiology of this parasitic infection, a retrospective study was carried out in Hormozgan province.

2. Material and Methods

This retrospective cross sectional descriptive study was performed on all of the patients with cutaneous leishmaniasis in urban or rural areas of Hormozgan province during 2007-2011. Clinical diagnosis was confirmed by health center experts. The demographic data, number and sites of the lesions were extracted from epidemiological records of urban and rural health centers of Hormozgan province. Descriptive statistics were used to analyze the results.

3. Results

A total of 1377 patients were included in this study of which 609(44.36%) were women. Youngest patient was 3 years old and the oldest was 73 years old. A total of 283 (20.56%) were urban dwellers. 48.35% had only one active lesion, 25% had two lesions and 26.5% had 3 or more lesions. Results indicate that 36.1% of lesions were present in face, and 5.5% in all parts of body. Leishmaniasis was most seen in rural areas of Hormozgan province(79.4%), and the frequency was different in different seasons, whereas the most recorded cases were seen in spring and winter. The disease was mostly seen in east and northwest of Hormozgan province. (the detailed results are shown in tables 1-4 and (fig 1).

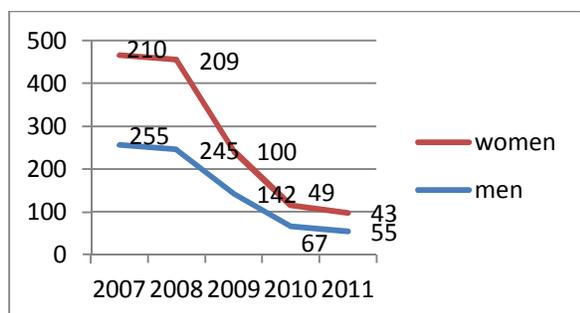


fig 1 frequency of cutaneous leishmaniasis in men and women

table 1 age distribution of patients suffering from cutaneous leishmaniasis

Age group	2007	2008	2009	2010	2011	total
0-9	186	172	92	45	36	531
10-19	88	101	53	25	17	284
20-29	92	68	45	23	18	246
30-39	41	38	23	11	16	129
40-49	26	33	11	4	4	78
> 50 years	32	44	18	8	8	110

table 2 place and gender distribution of patients with leishmaniasis

Year	Place				Gender		Total	percent
	Urban	Rural	Total	percent age	Men	women		
2007	75	390	465	33.76	210	255	465	33.76
2008	97	358	455	33.04	209	246	455	33.04
2009	50	192	242	17.57	100	142	242	17.57
2010	25	92	116	8.42	49	67	116	8.42
2011	36	63	99	7.18	43	56	99	7.18
total	283	1095	1378	99.97	612	766	1378	99.97

table 3: frequency of no and site of lesions

Year	Number of lesions				Site of lesion			total
	1	2	3	total	face	Hands/feet	other	
2007	217	113	135	465	162	289	14	465
2008	208	106	142	456	125	309	21	455
2009	124	67	51	242	87	143	12	242
2010	72	31	14	117	35	69	12	116
2011	39	25	33	97	25	63	11	99
Total	660	342	375	1377	434	873	70	1377
percent age	47.93	24.83	27.25	100	31.49	63.35	5.16	100

table 4 distribution of cutaneous leishmaniasis throughout the year

Month	2007	2008	2009	2010	2011	Total	percent
January	106	66	10	8	20	210	15.25
February	128	48	23	5	18	222	16.04
March	20	41	20	18	11	110	7.98
April	12	24	43	18	4	100	7.33
May	13	30	25	17	7	92	6.68
June	15	33	16	13	2	79	5.73
July	20	33	20	12	3	88	6.39
August	23	42	16	5	7	93	6.75
September	14	41	19	3	5	82	5.95
October	21	34	11	4	7	77	5.59
November	27	47	20	4	7	105	7.62
December	65	17	19	9	9	119	8.64
Total	464	456	242	116	99	1377	99.95

Discussion: The results of the study show that the trend of leishmaniasis infection is decreasing in Hormozgan province. Most observed cases were from southeast and northwest of the province and the infection was more seen in women than in men, which is consistent with results of other studies on leishmaniasis in Iran (3,11,12), but is in conflict with the results of Dehghan et al's study in Larestan during 2006-2008, in which the cause of the infection in men was mentioned to be mainly due to the presence of men in outdoors in night(13). But in our study and other similar studies the infection in men is mostly due to presence in of men in areas which sandflies are mostly present. Table 3 shows that 20% of recent infection of leishmaniasis in last five years is observed in urban areas, which is similar to results of Azni and coworkers' study in Dameghan town (11). In our study men were more affected than women which is similar to Rafati et al's study in Dameghan (12) and Abbasi et al study in Gorgan (3), but Dehghan's study in Larestan is somewhat different. (13)

Range of age of the patients was 3-87 years, but the most affected range was 0-9 years which was similar to Dehghan's results from Larestan (13), and then the range of 10-19 years with 20.6% and 20-29 years with 17.6% involvement which is similar to Gorgan's study (3).

48.4% (669) of the cases had one lesion which is quite similar to Yaghoobi et al's study (14) but Dameghan's study shows that 60% of the patients had more than one lesion in their body (12), also a study in Larestan showed that 62% had more than one lesion (13) which can be attributable to the density and swarming of the sandflies and the pattern of blood sucking.

Results of the table 4 show that 63.35% of the patients had a lesion in hands or feet, 31.49% had a

lesion in face, and 5.16 % were in other parts of body. Dameghan's study showed that the lesions were 49% present in hands, 35% in feet and 8.6% in face., but in our study facial involvement was 31.49%(11). A similar study in Larestan showed that 74% of the involvement was seen in hands , 21% in feet and 16% in both hands and feet. (13)

High incidence of the lesions on hands and feet can be attributable to the incomplete clothing in these areas, so we suggest that people living in endemic areas of leishmaniasis should be fully clothed and use bed net, to minimize the risk of being bit by the insects.

Our study shows that leishmaniasis was seen most in winter months. In Iranian studies most cases were reported in autumn (11, 15, 16, 17). So the difference of our study with other studies can be attributed to the meteorological and geographical characteristics of hormozgan province, which has autumn climate of central or northern Iran in winter months

Conclusion

This study shows leishmaniasis is an endemic disease in Hormozgan province, so special attention should be paid for leishmaniasis control program every year, and people living in the prevalent areas should be educated about this disease and informed about the prevention with isolating personal things s, and optimizing the environment, correct disposition of the thrash and sewage, and controlling rodents.

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