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Brief Report

Review of Ten-yrs Leprosy Cases in Azerbaijan, Northwest of Iran

F. Golforoushan, A. Razi, H. Azimi, H. Herischi

Abstract

Leprosy is a rare but important infectious disease caused by *mycobacterium leprae*. Word health organization suggested a strategy to reduce the prevalence of the disease to less than one per 10000 people. It seems that the leprosy is now in its elimination stage because during a period of ten years only few new cases were found in Iran. We studied 157 new leprosy cases that were referred to and registered in Bababaghi Center, Azerbaijan, Northwest of Iran**.** A total of 157 new cases, 107 (68%) males and 50 (32%) females were born in Azerbaijan with the peak age of the disease at their fourth decade. The most common form of the disease, especially in male patients, was lepromatous leprosy. Skin problems, especially eyebrow hair loss, constituted the most frequent sign of the disease. The most involved nerve was ulnar nerve. Leprosy is a chronic infectious disease that is associated with serious morbidity if left untreated. Although, leprosy is a rare disease in Iran it is important for the physicians to be aware when they visit a patient with chronic dermatitis with peripheral nerve involvement

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Keywords ● Leprosy ● epidemiology ● Iran

Introduction

Leprosy or Hansen's disease is a chronic infectious disease primarily affecting the skin and peripheral nerves.[1] Clinical signs and symptoms of leprosy are in direct relationship with the immune response of the host against *mycobacterium leprae (M. leprae*).[2] The disease spectrum includes polar tuberculosis leprosy (*paucibacillary*; TT) that is characterized by intense response of the host's immune system, little number of bacilli and a few cutaneous lesions and polar *lepromatous leprosy* (multibacillary; LL) with weak immune response and many skin lesions.[3] Sex prevalence in children is equal.[4] Adults especially women seem to be more resistant.[3]

In 1991 WHO announced leprosy elimination and decrease in prevalence to less than one case per 10000 people. At the present time about 83% of these patients live in six countries including: Nepal, Madagascar, Myanmar, Indonesia, India and Brazil.[5-9] The diagnosis of Leprosy is based on the findings of one or two of the following features: erythematous or hypopigmented skin lesion with sensory loss, peripheral nerve involvements with distinct sensory loss, muscle weakness and thickening of the nerve, or positive skin smear or skin biopsy of acid-fast bacilli.A patient with one or two of these major findings are considered as a leprosy case.[10,11] Diagnosis of Leprosy is not difficult in multibacillary patients, however, this

Department of Dermatology,
Sina Hospital,
Tabriz University of Medical Sciences,
Tabriz, Iran.

Correspondence:
Farideh Golforoushan MD,
Department of Dermatology,
Sina Hospital,
Tabriz University of Medical Sciences,
Tabriz, Iran.
Tel: +98 411 5214101
Fax: +98 411 5413520
E-mail: Bimarestansina_Tabriz@Yahoo.com

might be challenging in paucibacillary patients with faded skin lesions.[11]

There are two laboratory tests without a significant role in diagnosis of this type of the disease. Antibody titers against specific antigen of M. leprae i. e. phenolic glycolipid (PGL_1) which is a sensitive and specific test in multibacillary patients but is not so much help in patients with negative smear.[12] Polymerase chain reaction (PCR) is a sensitive and specific test of Leprosy, again not so useful for paucibacillary or borderline cases.[13] Here we try to review the demographic characteristics, clinical types and manifestations of leprosy patients participated in Bababaghi Center of Tabriz, Azerbaijan, Northwest of Iran.

Patients and Methods

We evaluated the records of all patients with leprosy who presented to the Skin Disease Research Center of Bababaghi, Tabriz University of Medical Sciences. We studied descriptive information including patient's age, gender and place of birth, type of skin lesions (maculae, papule, etc.), distribution of the lesions (generalized or localized), ocular lesions, cranial nerves involvement, peripheral neuropathy, eyebrow hair loss, involvement of nose or pinna, type of the disease including lepromatous, borderline or *tuberculosis leprosy*, histopathologic diagnosis of biopsy specimen(s) and finally the result of lepromin test.

Data were analyzed with descriptive statistics and Chi square analyses for comparing proportions of categorical variables and $P< 0.05$ was considered as statistically significant.

Results

Most patients were 10 to 59-yrs-old (Table 1). The data related to the age of the patients at the time of diagnosis did not represent the period of the disease before diagnosis or the latent period. The prevalence of LL in men was significantly higher than women.

Table 1: Characteristics of leprosy patients

Sex	LL	TT	BB	Total
	no(%)	no(%)	no(%)	no(%)
Male	81(52)	14(9)	12(8)	107(68)
Female	26(16)	10(6)	14(9)	50(32)
Lepromin test				
Positive	4(7)	24(45)	25(47)	53(34)
negative	103(99)	--	1(1)	104(66)

LL=Lepromatous Leprosy; TT=Tubercluid Leprosy; BB=Borderline Leprosy

Lepromin test results are also summarized in Table 1. Of 53 patients with positive lepromin tests, 24 had tuberculoid leprosy, 25 borderline and 4 lepromatous disease. Negative results of lepromin test are more probable and should be encountered in patients with lepromatous leprosy. Eyebrow hair loss was found in 88 of 157 patients of which 84 patients had LL and four borderline diseases. A significant relationship was found between lepromatous form of the disease and eyebrows hair loss. The frequency of cutaneous lesions were as the following: maculae in five patients, papules in 10 patients, plaques in 61 patients, nodules in 24 patients, patches in one patient, and ulcers in eight patients. Table 2 shows the involvement of peripheral nerves with the ulnar nerve being the most common involved nerve.

Table 2: Peripheral nerve involvement in patients with tuberculosis leprosy (TT); Borderline Leprosy (BB) and Lepromatous Leprosy (LL)

Nerve	TT	BB	LL
	no(%)	no (%)	no (%)
Ulnar	1(7)	2(13)	12(80)
Proneal	-	1(5)	3(750)
Both	6(30)	1(5)	13(65)

Discussion

Azerbaijan is considered to be one of the endemic areas for leprosy in Iran, but early registration, compliance with multiple drug therapy has led to the reduction of the disease. In our study the number of new cases of leprosy was 109 patients in the first five years of the study and 48 cases in thereafter. In this study we had 107 patients with lepromatous disease of whom 81 were males and 26 females with the prevalence of lepromatous leprosy being significantly higher in men than women. This observation was similar to those of Boggild and colleagues showing that of 184 new cases of leprosy they studied in Toronto, Canada (from 1979 to 2002) 122 (66.3%) patients were male.[14]

Toweir and coworkers carried out a study in Benghazi, Libya of and found that 47% of their native patients were from Benghazi city and the rest from the Southeastern part of the country.[15] In their report the number of the new cases had declined from 18 cases in 1994 to four patients in 1998 with the ratio of multibacillary to paucibacillary patients being 1.3/1 with the most common presentation of the disease being hypopigmented skin lesions.[15] consequently, according to the place of patients birth, one third of our patients were from rural areas of Eastern Azerbaijan.

Lepromin tests performed here, and by others too,[1] indicated that cell mediated immunity to M.leprae was positive in tuberculosis and borderline leprosy. However, only four patients with lepromatous leprosy had positive lepromin test which might have been due to

shifting of immune response from borderline leprosy to lepromatous leprosy.[1]

The most common clinical lesion in our patients was hair loss of eyebrows; therefore, this might be an important presenting sign of leprosy. Furthermore, more involvement of ulnar nerve in our patients as well as of other studies seem to indicate that thickening of this nerve is a useful diagnostic criteria of leprosy.[16]

Although the incidence of leprosy has decreased in recent decades, however, it is still far from being completely eradicated.

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