

THE PREVALENCE OF LEPROSY AMONG DIFFERENT ETHNIC GROUPS IN THE BLUE NILE VALLEY OF WESTERN ETHIOPIA

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ABSTRACT: An epidemiological study of leprosy among different ethnic groups in the Blue Nile valley of western Ethiopia was conducted to obtain baseline data on disease prevalence. A total of 1430 people in three villages were examined for clinical signs and symptoms of leprosy. History, physical examination and skin smears were done. The prevalence rate of leprosy was found to be the highest (53/1000) among the Nilotic people on the southern banks of the Blue Nile River, while the prevalence for Oromo people of the highest altitudes was near zero. For the Nilotic people of Dalati (altitude 1,200 m) the prevalence rate was 18/1000. Although it constitutes a major health problem in the lowlands, leprosy seems to be comparatively less prevalent in the highlands. Possible socio-cultural explanations for this epidemiological pattern of leprosy in Mendi District are discussed and suggestions for further investigation and control measures are given.

INTRODUCTION

The Blue Nile valley portion of Wollega Administrative Region, western Ethiopia (Fig.1) has great potential. Presently, a large agricultural settlement programme and marble extraction industry are in progress in that area.

Fuller Torrey in 1966 stated that leprosy was not a problem among the Nilotic people in Sirba area (1). The records from various clinics in Mendi area gave a clear impression that leprosy in Mendi District is almost exclusively found in the lowlands of the Blue Nile valley. As clinic records might not give a reliable epidemiological information about the disease, the study in the present survey was conducted in 1986 to obtain a baseline data on disease prevalence for planning future control programmes. The study indicates the prevalence of leprosy among rural populations of different ethnic groups living under variable climatic conditions.

MATERIALS AND METHODS

Study area: The three villages, which were included in the study, are located near Mendi town within Wollega Administrative Region of Ethiopia (Fig.1).

The lowlands of Mendi area (altitude approximately 700 m a.S.L) are considered an extension of the Sudanese savannah with fertile black soil, a very hot (max 40-45⁰c) and comparatively dry climate, and a rainy season from May to September (2). The inhabitants are the 'Say Say' tribe of the Nilotic Gumuz people, who in this survey are referred to as Lowland Nilotics, and who live around the major villages of Sirba (3).

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The highlands (altitude approximately 1700 m) are mainly mountain savannah with infertile volcanic soil, moderately hot climate (15.0-28.7⁰c) and ample rain from April to October (3). The inhabitants are mainly Oromos.

The midlands, mainly represented by the fertile plains near Dalati, have geographical and population characteristics of both areas. The original inhabitants are Nilotic people of the Berta linguistic group, called midland Nilotics (in the present survey). In addition, an increasing number of Oromos, here called midland Oromos, farm as semi-nomads in the Dalati plains part of the year.

Study Design: Community based prevalence study of leprosy in three villages of the Blue Nile valley in the Mendi area.

Study Population: The population of three villages representing different ethnic groups and residential altitudes (climatic conditions) were all covered in the study (100%). The villages are Gombi (1700 m), Dalati (1200 m) and Sirba (700 m) representing highland Oromos, midland Oromos and Nilotics and lowland Nilotics respectively. They were examined for clinical signs and symptoms of leprosy by a leprosy medical officer. The skin smears were taken by trained senior Laboratory Technician under the supervision of a Leprosy Medical Officer and examined under the Microscope after staining by modified Ziehl Nielsen Method.

The adopted operational definition of a "case" is a person having clinical signs of leprosy, with or without bacteriological confirmation of the diagnosis, and requiring chemotherapy. The classification is based on the zones of leprosy spectrum according to the Madrid classification (4,5).

RESULT

The leprosy results among different ethnic groups at different altitudes are presented in Table 1. A total of 26 (18/1000) had confirmed leprosy, out of which only 12 skin smears were positive (46%). The degree of positivity was related to the morphological index (MI). The 12 positive cases were borderline and lepromatous cases coinciding with clinical findings revealing typical skin and nerve involvement of the disease. The remaining 14 (54%) had negative skin smears in which case the diagnosis were mainly based on typical skin and nerve involvement found by clinical examination (tuberculoid and indeterminant cases). Among the 26 diagnosed cases 6 were found to be previously recognized leprosy (tuberculoid leprosy cases), out of which 3 were still on treatment, while 3 were defaulters. The remaining 20 were new cases. The study showed a picture of increasing prevalence of leprosy with lower the altitudes. Only 5 cases were found among the highland Oromos and midland Oromos which gives prevalence rates of 2 and 8 per thousand respectively. Four of these cases were classified as indeterminate leprosy where the diagnosis is doubtful, rendering the prevalence rate possibly even lower. On the other hand prevalence rates of 18 and 53 per thousand were found among the midland (Dalati) Nilotics and low land (Sirba) Nilotics, respectively.

DISCUSSION

When one considers the fact that the three villages are at different altitudes and comprised of different ethnic groups, it was interesting to note a clear difference of leprosy prevalence for highland and midland Oromos and midland and lowland Nilotics. The low prevalence rates of 2 and 8 per thousand were found among the highland and midland Oromos. A high prevalence rate of 53/1000 is found among the lowland (Sirba) Nilotics who live near the Blue Nile River. The prevalence rate of 18 per thousand among the midland Nilotics is also relatively higher than their Oromo counterparts.

The reasons for the difference in prevalence are not known. However, when the prevalence is compared between the two ethnic groups regardless of their residential area, the difference is statistically highly significant ($X^2=19.6$ $p<0.0001$). Thus, one might suspect that social or cultural differences between the two ethnic groups might explain the difference. This is true to some extent. The social life of the leprosy patients is affected quite differently in traditional Oromo and Nilotic society. In the main Ethiopian tradition leprosy patients tend to be segregated, and the patients attitude towards their disease is full of fatalism, resignation and withdrawal from society, which inevitably leads to a tendency to hide the infection (6). On the contrary leprosy infection does not bring any

Table 1. Leprosy cases by altitude and ethnic group in Mendi District Blue Nile Valley - Western Ethiopia.

	Highland Oromos (1700m) N-420	Midland Oromos (1200 m) N-4-490	Midland Nilotics (1200 m) N-220	Lowland Nilotics (700 m) N-320	Total N-1450
Interminate Leprosy	1	3	1	1	6
Tuberculoid Leprosy	0	0	0	7	8
borderline Leprosy	0	1	1	8	10
Lepromatous Leprosy	0	0	2	0	2
Total	1(0.2%)	4(0.8%)	4(1.8%)	17(5.3%)	26(1.8%)

social misfortune for the Nilotic patient in the Blue Nile Valley. The patient takes part in the social life on the same basis as any other person, living together with his family, eating and sleeping with them.

The prevalence rate in the present survey was 18/1000 for midland (Dalati) Nilotics while the rate was 53/1000 among lowland (Sirba) Nilotics. Comparison between these prevalence rates is not statistically significant at $P \leq 0.05$ level ($X^2=338$ $p=0.07$). So the social and cultural similarities seem to explain why the prevalence rate is higher among the Nilotics.

In 1966 Fuller Torrey saw only one possible leprosy case among people examined in the lowland near Sirba (1). One, therefore, has the impression that leprosy prevalence has increased almost to an epidemic proportion. Epidemics of leprosy with prevalence rates rising sharply have been described from Nauru, Ponape and Turk, Hawaii, Iran, Jaya and Eastern Nigeria (7). These epidemics appear in most instances in communities in which leprosy has been introduced only recently. In these places one found that after a short period with predominantly lepromatous cases, the epidemic continues with many cases of tuberculoid leprosy as a sign of starting immunity in the population (7).

The situation in Sirba could very well correspond to the above mentioned experience from the Nuru and other studies (7). One also should have in mind that this highly endemic area is only separated by the Blue Nile River from Gojjam Administrative Region (communication is possible during the dry season through the wider areas of the river), where one finds the highest prevalence rates of leprosy in Ethiopia recorded up to now. While the estimated leprosy rates for Ethiopia are thought to be 10-12/1000, prevalence rates of 25-49/1000 have been reported from Gojjam (2). However, there is a need for a wider area and larger population coverage with more representative sampling for ethnic groups in future epidemiological studies in order to clarify the factors contributing to the pattern of difference in leprosy prevalence among the villages in the study area.

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