

A prospective study of prevalence & types of leprosy

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Abstract

Introduction: Leprosy (Hansen disease) is a chronic infectious disease caused by an intracellular acid-fast bacillus *Mycobacterium leprae* which apart from skin, nasal mucosa and peripheral nerves also affects the anterior segment of the eye. *M. leprae* was discovered over a hundred years ago (around 1873) by Armauer Hansen. It is a disease that does not kill the affected individual but cripples. When the threat of blindness is also added to patient's natural dread of the disease, the condition is indeed terrifying. **Materials and methods:** This study comprises of detailed examination of 180 consecutive patients of Hansen's disease. It has been carried out in the Department of Ophthalmology, Mamata General Hospital, Khammam and with the cooperation of department of Dermatology, Mamata General Hospital. All patients who were admitted in the leprosy department with leprosy from 2015 January to December 2016 December were included in this study. All the patients with congenital abnormalities, inflammatory conditions of the breast and breast carcinomas were excluded from the study. **Results:** This study includes a total number of 180 patients of leprosy disease who were carefully examined for any evidence of ocular lesion. Most of the patients were males, females accounting for only 21.79%. Among the 180 patients, 60 patients had the evidence of the ocular involvement. It points out to the fact that most of the Hansen's patients develop ocular lesions. **Conclusion:** Most of the patients are adults. There is no significant influence of age either on the presence or absence of eye involvement or in the type of Hansen's disease. The commonest type of leprosy is lepromatous leprosy followed by all types of borderline leprosy. The incidence of ocular involvement is very high in these two forms of leprosy disease (86.6% & 63.6%).

Key words: Hansens disease, Lepromatous leprosy, Leprosy

Introduction

Leprosy (Hansen disease) is a chronic infectious disease caused by an intracellular acid-fast bacillus *Mycobacterium leprae* which apart from skin, nasal mucosa and peripheral nerves also affects the anterior segment of the eye [1]. *M. leprae* was discovered over a hundred years ago (around 1873) by Armauer Hansen.

It is a disease that does not kill the affected individual but cripples. When the threat of blindness is also added to patient's natural dread of the disease, the condition is indeed terrifying. There is direct ocular involvement in lepromatous type, whereas in tuberculoid type ocular involvement is indirect. The eyes can also be involved in lepra reactions [2]. Ocular lesions are common in lepromatous type taking the form of lepromatous nodules, conjunctivitis, keratitis, pannus, scleritis and uveitis. In tuberculoid type, ocular lesions are rare.

They are secondary to involvement of branches of seventh cranial nerve giving rise to paralytic lagophthalmos and exposure keratitis and involvement of trigeminal nerve leading to neurotrophic keratitis. Acute iridocyclitis and scleritis most commonly occur during type II lepra reactions which occur in lepromatous type of leprosy [3,4,5].

In leprosy, the hands and feet have received a tremendous amount of attention however by comparison eyes have been neglected. An attempt should be made to educate these patients to undergo regular eye examination. Much of the ocular morbidity and blindness due to leprosy are potentially avoidable by screening, detection and early treatment of the potentially sight threatening lesions [6,7,8]. Leprosy is a disease of great antiquity having been recognized from Vedic times in India and from Biblical times in the Middle East.

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It probably originated in the tropics & spread to the rest of the world [9,10]. In this study we are going to study the prevalence of leprosy in general hospital, Khammam.

Materials and Methods

This study comprises of detailed examination of 180 consecutive patients of Hansen's disease. It has been carried out in the Department of Ophthalmology, Mamata General Hospital, Khammam and with the cooperation of department of Dermatology, Mamata General Hospital.

Inclusion criteria: All patients who were admitted in the leprosy department with leprosy from 2015 January to December 2016 were included in this study.

Exclusion Criteria: All the patients with congenital abnormalities, inflammatory conditions of the breast and breast carcinomas were excluded from the study.

Clinical records of all the patients of Leprosy attending leprosy Clinic, in OPD of the department of Dermatology, Venereology and Leprosy, for a period of

Results

In our study 180 leprosy patients were examined, In that 140 (78.2%) patients were males, 40 (21.79%) were females. This study includes a total number of 180 patients of leprosy disease who were carefully examined for any evidence of ocular lesion. Most of the patients were males, females accounting for only 21.79%. Among the 180 patients, 60 patients had the evidence of the ocular involvement comprising 76.9% of patients. It points out to the fact that most of the Hansen's patients develop ocular lesions.

Table-1: Age Incidence

Type	Total	0-10	11-20	21-30	31-40	41-50	51-60	61-70
LL	87	-	-	4	12	19	8	4
BL	37	-	2	2	1	3	4	2
BB	29	-	-	2	5	2	-	-
BT	18	-	-	1	1	2	-	-
TT	9	-	1	1	2	-	-	-
Total	180	-	10	23	47	60	22	18

Table-2: ACE Incidence with ocular lesions

Type	Total	0-10	11-20	21-30	31-40	41-50	51-60	61-70
LL	117	-	-	6	24	48	27	12
BL	36	-	-	6	6	6	12	6
BB	9	-	-	3	-	6	-	-
BT	9	-	-	3	3	3	-	-
TT	12	-	-	6	3	-	-	-
Total	180	-	-	24	36	63	36	18

two years, from January 2015 to December 2016, were analyzed, after obtaining institutional ethical clearance and anonymizing the data. The Clinical records of patients provided information on demographic data, details of clinical examination, type of Leprosy, complications like Leprosy reactions, deformities, trophic ulcers and treatment. Patients were classified according to Ridley Jopling classification.

Two more categories, indeterminate leprosy (I) and primary neuritic leprosy, were added. For the purpose of MDT, the disease was classified into multibacillary (MB), if there were six or more lesions and/or more than one nerve involvement, as per WHO classification.

The diagnosis was mostly clinical and made by consultants with postgraduate qualification in Dermatology, Venereology and Leprosy. Slit skin smear examinations and lesional biopsy were done, wherever needed, for confirmation of diagnosis.

Statistical Analysis: Descriptive statistics like mean and percentages were used to interpret the data with the help of Microsoft office 2007.

Most of the Patients examined are adults. Only three patients are below the age of 20 years. There is no significant difference in the age distribution of patients of Hansen's disease as compared to that of patients with ocular involvement. None out of 3 patients below the age of 20 years had ocular manifestations. Similarly, there is no significant variation in the distribution in different types of leprosy disease.

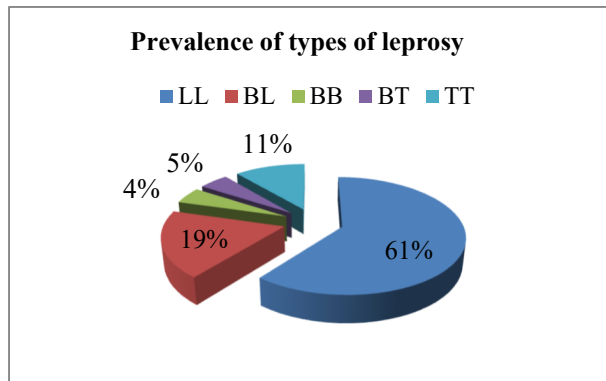


Figure-1: Prevalence of types of leprosy

Table-3: Sex Incidence

Type	Male	Percent	Female	Percent
LL	85	47.43%	22	10.25%
BL	27	15.38%	6	2.56%
BB	12	6.4%	8	5.14%
BT	5	2.56%	4	3.86%
TT	12	6.4%	-	-
Total	141	78.19%	40	21.77%

Most of the patients examined are males, who outnumbered females in the ratio of 3:1 approximately with 61 patients being males and only 17 being females. This ratio is maintained in lepromatous leprosy and border line lepromatous type of leprosy disease. But in borderline and borderline tuberculoid type of leprosy the ratio is 1:1; though its significance is of doubtful because of the smallness of number.

Table-4: Incidence of types of leprosy

Type	Total	Ocular lesion	Percent
LL	87	75	86.6%
BL	37	31	85.71%
BB	29	10	33.3%
BT	18	10	60%
TT	9	6	60%

Hansen's disease 'has been clinically classified into 3 types, lepromatous leprosy (LL), tuberculoid leprosy (TT) and borderline type. The borderline is again sub-divided into 3 types i.e., borderline lepromatous leprosy (BL), borderline (BB) and border line tuberculoid type of leprosy (BT).

Among the 78 patients examined, 45 patients (86.6%) belonged to lepromatous type of leprosy and only 5(6.4%) belonged to tuberculoid type of leprosy. Among the borderline group also majority belonged to borderline lepromatous leprosy (BL) and only 5 belonged to borderline tuberculoid type of leprosy (BT). The overall incidence of lepromatous type is much more than that of tuberculoid type.

In the present study, the ocular involvement is 86.6% in lepromatous leprosy, 63.6% in Border line type of leprosy (85.7% in BL, 33.3% in BB, 60% in BT) and 60% in tuberculoid leprosy. The incidence is higher in lepromatous leprosy and BL type of leprosy.

Discussion

In a study conducted by A Samuel Gnanadoss, N Rajendran in 250 patients of leprosy. cases were analysed. Out of them, 102 cases (40.8%) were lepromatous, 96 (38.3%) were tuberculoid and 52 were (20.8%) borderline cases [11].

In our study, among the 180 patients examined, 155 patients (86.6%) belonged to lepromatous type of leprosy and only 12 (6.4%) belonged to tuberculoid type of leprosy. Among the borderline group also majority belonged to borderline lepromatous leprosy (BL) and only 5 belonged to borderline tuberculoid type of leprosy (BT). The overall incidence of lepromatous type is much more than that of tuberculoid type.

In the study conducted by A Samuel Gnanadoss, N Rajendran, Since Hansen's is a chronic condition it is not surprising to see that 52% were above the age of 40 years [12].

In our study, Most of the Patients examined were adults. Only three patients are below the age of 20 years. There is no significant difference in the age distribution of patients of Hansen's disease as compared to that of patients with ocular involvement. In our study, the ocular involvement is 86.6% in lepromatous leprosy, 63.6% in Border line type of leprosy (85.7% in BL, 33.3% in BB, 60% in BT) and 60% in tuberculoid leprosy. The incidence is higher in lepromatous leprosy and BL type of leprosy.

In a study conducted by shivyogi R. Kusagar on ocular manifestations in leprosy, Among the three major types of leprosy, all were found to have ocular changes. Ocular involvement was predominantly seen in lepromatous type (35%), followed by Borderline lepromatous type (31%), and borderline tuberculoid, and tuberculoid type (17% each respectively) [13,14,15,16,17].

This was similar to study by Wani M.S. et al, wherein ocular involvement was found to be higher in lepromatous leprosy (75.36 %), followed by borderline (14.49 %) and tuberculoid leprosy (10.14%). Ocular complications appear to be more common among lepromatous patients than tuberculoid as anterior segment of the eye provides a favorable environment for the M. Leprae which is more numerous in the lepromatous patients.

All the 24 % of patients with history of lepra reaction in the study group, showed ocular manifestations [18-22].

Conclusion

Most of the patients are adults. There is no significant influence of age either on the presence or absence of eye involvement or in the type of Hansen's disease. Most of the patients are males who outnumbered females in the ration of 3:1.

This difference is seen in all the types of Hansen's disease. The commonest type of leprosy is lepromatous leprosy followed by all types of borderline leprosy. The incidence of ocular involvement is very high in these two forms of leprosy disease (86.6% & 63.6%).

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