

Original Research Article

A clinical study of new cases of Hansen's disease at a tertiary health care centre in post elimination era

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ABSTRACT

Background: Leprosy, in 2016, globally a total of 214,783 new cases were reported over half of them were from India (135,485) alone. However, 16 other countries with pockets of high endemicity were reported. On the other hand, actual numbers of people affected by the disease is likely to be far higher than statistics show as there still prevails lack of awareness about the disease, lack of skills of general health staff in leprosy diagnosis, inadequate active case findings, lack of inclusion of cases from private sector and presence of high stigma in the community. Aims and objectives were to study the number of increasing new cases of Hansen's disease in post elimination era.

Methods: A prospective observational study of number of new cases of leprosy presented at a department of DVL, BMCH, Chitradurga, Karnataka, from 2017 April-2018 September. A total of 91 cases were detected.

Results: Series of 91 cases were detected, and based on WHO classification were classified as multibacillary (MB)-72 cases and paucibacillary (PB)-19 cases. The maximum number of cases were detected between 20-29 years of age. The male to female ratio was 1.2:1. 46 (50.54%) cases were diagnosed to have borderline tuberculoid (BT). Patients mainly belonged to low socioeconomic status (89.1%). Deformities were seen in 21 (23.07%) cases. 7 patients presented with type-I reaction and 13 patients with type-II reactions.

Conclusions: Even with MB-MDT and monitoring, some high endemic pockets of leprosy may continue to persist in India. Every year new cases are increasing and causing morbidity from neglected cases. We should not be complacent at this stage because it may become a serious health problem again.

Keywords: Leprosy, Post elimination era, MB-MDT

INTRODUCTION

Leprosy is a chronic infectious disease, caused by the bacillus *Mycobacterium leprae*. Leprosy is transmitted through droplets from the nose and mouth of an untreated person affected by the disease to their close contacts. In 2016, globally a total of 214,783 new cases were reported; over half of them were from India (135,485) alone. However, 16 other countries with pockets of high endemicity were reported. Motor and sensory disability, including damage to fingers and toes, contractures,

inability to close the eyelids and blindness can occur due to delay in treatment of the disease.¹

A decrease in new case detection although has been reported in the South-East Asia regions during 2002 and 2005, disabilities (grade 2) among the new cases were reported as 1.7 per million population in 2016.

On the other hand, actual numbers of people affected by the disease is likely to be far higher than statistics show as there still prevails lack of awareness about the disease, lack of skills of general health staff in leprosy diagnosis,

inadequate active case findings, lack of inclusion of cases from private sector and presence of high stigma in the community.¹

The WHO mentioned in the enhanced global strategy for leprosy (2011-2016) that there is loss of clinical skills in recognizing and managing leprosy and its complications, lack of interest by the young doctors to specializing in leprosy,

lack of research, less political commitment as major challenges to reduce the leprosy burden. Investment in the leprosy services is now reducing among many governments, resulting in declining professional expertise and knowledge of the disease.²

Current situation of leprosy in India

In India, the national leprosy eradication programme (NLEP) is the centrally sponsored health scheme of the ministry of health and family welfare, government of India. While the NLEP strategies and plans are formulated centrally, the programme is implemented by states and union territories (UTs). The programme is also supported by WHO, ILEP, and few other nongovernmental organizations (NGOs). Due to their efforts, from a prevalence rate of 57.8/10,000 in 1983, India has succeeded with the implementation of MDT in bringing the national prevalence down to “elimination as a public health problem” of less than 1/10,000 in December 2005 and even further down to 0.66/10,000 in 2016. In addition to achieving the national elimination target by the end of 2005, India by the end of March 2011-2012 succeeded in achieving elimination at the state level in 34 states/UTs out of the total of 36 states/UTs. Only the state of Chhattisgarh and the UT of Dadra and Nagar Haveli were yet to achieve elimination. By the end of March 2016, 551 districts (82.36%), out of the total 669 in districts, in India had a prevalence of <1/10,000 population which is the target of elimination as a public health problem. The number of districts with prevalence between 1 and 2/10,000 were 76, number of districts with prevalence between >2 and 5/10,000 were 39, and those between 5 and 10 were 2.³

The WHO launched a 5-year global leprosy strategy 2016-2020’ in April 2016 titled ‘accelerating towards a leprosy-free world’.

Perhaps, for above-mentioned reasons, the strategy for years 2016-2020 is built around three pillars: (i) to strengthen government ownership, coordination, and partnership; (ii) to stop leprosy and its complications; and (iii) to stop discrimination and promote inclusion. There is a special focus on women and children, strengthening referral systems, more effective contact tracing, assessing the value of chemoprophylaxis, and monitoring drug resistance.⁴

This paper discusses the current situation of leprosy in India in the context of the world and includes the successes, new initiatives, challenges, and future implications for leprosy control in India.

Aims and objectives

Aim and objectives of the study were to study the number of increasing new cases of Hansen’s disease in post elimination era.

METHODS

A prospective observational study of number of new cases of leprosy presented at a department of dermatology, venereology and leprosy BMCH, Chitradurga, Karnataka, over the period of 1 and 1/2 years (18 months) from 2017 April-2018 September.

Series of 91 cases were detected, and based on the number of skin lesions and peripheral nerves involved, according to WHO classification were classified as multibacillary (MB) and paucibacillary (PB) cases and other demographical data.

RESULTS

Age distribution

This study had 35 (38.46%) patients aged between 20-29 years, 30 (32.96%) patients aged between 30-39 years forming the major portion. 3 (3.29%) patients aged less than 10 years, 2 (2.19%) patients aged between 10-19 years, 8 (8.79%) patients aged between 40-49 years, 10 (10.98%) patients aged between 50-59 years, 3 (3.29%) patients aged more than 60 years (Table 1).

Table 1: Age distribution.

Age (year)	TT	BT	BB	BL	LL	PN	IL	Total (%)
<10	-	1	-	-	-	-	2	3 (3.29)
10-19	1	1	-	-	-	-	-	2 (2.19)
20-29	1	30	1	2	-	-	1	35 (38.46)
30-39	-	11	1	16	2	-	-	30 (32.96)
40-49	-	-	-	3	5	-	-	8 (8.79)
50-59	-	3	-	2	5	-	-	10 (10.98)
>60	-	-	-	1	2	-	-	3 (3.29)
	2	46	2	24	14	0	3	91

Sex distribution according to age

Out of 91 patients 51 (56%) were male. 40 (44%) were female. M:F ratio of is 1.2:1 (Table 2).

Table 2: Sex distribution according to age.

Age (Year)	Male	Female	Total
<10	2	1	3
10-19	1	1	2
20-29	16	19	35
30-39	21	16	30
40-49	7	1	8
50-59	2	1	10
>60	2	1	3
	51	40	91

Clinical diagnosis

In this study out of 91 cases 2 (2.19 %) patients were diagnosed as tuberculoid leprosy (TT), 46 (50.54%) as borderline tuberculoid leprosy (BT), 2 (2.19%) as borderline leprosy (BB), 24 (26.37%) as borderline leprosy (BL), 14 (15.38%) as lepromatous leprosy (LL), 3 (3.29%) as indeterminate leprosy (IL), no patients from poly neuritic leprosy (PN) group (Table 3).

Table 3: Clinical diagnosis.

Type	Total	Percentage (%)
TT	2	2.19
BT	46	50.54
BB	2	2.19
BL	24	26.37
LL	14	15.38
PN	0	-
IL	3	3.29

Table 4: Clinical diagnosis according to sex distribution.

Type	Male	Female	Total
TT	1	1	2
BT	30	16	46
BB	0	2	2
BL	12	12	24
LL	8	6	14
PN	0	0	0
IL	0	3	3

Socioeconomic status

In this study 81 (89.10%) patients were from low-income group whereas 8 (8.7%) patients were from middle income group and 2 (1.8%) patients from high income group (Table 5).

Table 5: Socioeconomic status.

Status	Number	Percentage (%)
Upper class	2	1.8
Middle class	8	8.7
Lower class	81	89.1

Deformities

In our study 21 patients had deformities most common being fissures 20 (21.9%) cases, trophic ulcers in 10 (10.9%) cases, claw hand (partial and full) in 7 (7.6%) cases, leonine facies (partial and full) in 3 (3.2%) cases, foot drop in 2 (2.1%) cases, none with wrist drop (Table 6A and 6B).

Table 6A: Deformities.

Deformities	Cases	Percentage (%)
Present	21	23.07
Absent	70	76.92

Table 6B: Visible deformities.

Type	No.	Percentage (%)
Claw hand (partial or full)	7	7.6
Trophic ulcers	10	10.9
Foot drop	2	2.1
Wrist drop	-	-
Fissures	20	21.9
Leonine facies (partial or full)	3	3.2

Reactions

In our study 7 (7.6%) patients had type-I reaction and 13 (14.2) patients had type-II reaction as shown in the Table 7).

Table 7: Reactions.

Reaction	T	B	B	B	L	P	I	Total	%
	T	T	B	L	L	N	I		
Type-I	-	5	-	2	-	-	-	7	7.6
Type-II	-	-	-	8	5	-	-	13	14.2

WHO classification

In our study 72 (79%) patients belonged to MB group and 19 (21%) patients belonged to MB group as shown in the Table 8).

Table 8: WHO classification.

Types-treatment	Cases	Percentage (%)
MB	72	79
PB	19	21

DISCUSSION

Age distribution

In present study 35 (38.46%) patients aged between 20-29 years, 30 (32.96%) patients aged between 30-39 years forming the major portion. 3 (3.29%) patients aged less than 10 years, 2 (2.19%) patients aged between 10-19 years, 8 (8.79%) patients aged between 40-49 years, 10 (10.98%) patients aged between 50-59 years, 3 (3.29%) patients aged more than 60 years.

Three patients aged less than 10 years indicates high infectivity status in community. 2 cases were IL type had family history. It indicates that contact of family members plays a major role in development of disease.

In this study age group between 20-39 years comprises 71% of cases (65 cases).

Swarnakumari et al found maximum number of patients 50 (194, 25.77%) belongs to 20-29 years of age group, 20-39 years 81 cases (42%), were as least number of patients 3 (194, 1.57%) belongs to less than 10 years of age group.⁵

Santaram et al found the disease is more common in age group 21-40 years.⁶ Samuel et al found the disease common in 21-40 years (48%).⁷ Singh et al found disease common in 21-49 years (53%).⁸

Deepika et al-Out of the total of 300 leprosy patients 4% (12) patients belonged to the paediatric age group (<14 years) and the male-to-female ratio was 3:1 in children. Family history was present in 25% of the children with leprosy.⁹

Sex distribution

Out of 91 patients 51 (56%) were male, 40 (44%) were female. M:F ratio of is 1.2:1. Swarnakumari et al found 70.1% were male, 29.9% were female.⁵ Santaram et al found 80% were male, 20% were female.⁶ Singh et al found 69% were male, 31% were female.⁸

Results of the present study are close to the above-mentioned studies with male predominance.

Clinical diagnosis

In this study out of 91 cases 2 (2.19 %) patients were diagnosed as tuberculoid leprosy (TT), 46 (50.54%) as having borderline tuberculoid leprosy (BT), 2 (2.19%) as borderline leprosy (BL), 24 (26.37 %) as borderline leprosy (BL), 14 (15.38%) as lepromatous leprosy (LL), 3 (3.29%) as indeterminate leprosy (IL), no patients from poly neurotic leprosy (PN) group.

Swarnakumari et al found more cases in BT 102 (52.57%) group, followed by LL 23 (11.85%), least in TT

group 2 (1.03%) cases.⁵ Jindal et al found 33% BT cases, 23% BL cases, TT 5.5% cases.¹⁰ Arora et al found BL cases 45%, 27.5% of cases in BT, 15.5% cases in LL, 1.3% in TT group.¹¹

Thus, the clinical types of leprosy vary from study to study and place to place. Borderline leprosy lesions are more apparent and this may be the reason for more patients self-reporting to the hospitals.

Socioeconomic status

In this study 81 (89.10%) patients were from low-income group whereas 8 (8.7%) patients were from middle income group and 2 (1.8%) patients from high income group.

Swarnakumari et al found 80% were low-income group, 20% were middle income group.⁵ Singh et al found 57% were low-income group, 21.6% were lower-middle income group.⁸

Disease is highest in low socioeconomic status, person who lived in poor conditions, overcrowding, poor nutrition, poor sanitation, illiteracy and lack of personal hygiene are important factors for acquisition of leprosy disease.

Deformities

In our study 21 patients had deformities most common being fissures 20 (21.9%) cases, trophic ulcers in 10 (10.9%) cases, claw hand (partial and full) in 7 (7.6%) cases, leonine facies (partial and full) in 3(3.2%) cases, foot drop in 2(2.1%) cases, none with wrist drop.

Swarnakumari et al found 29.9% of patients having deformities. claw hand in 7.3% of patients, ulcers in 25 (12.9%) patients, fissures in 10 (3.1%) cases.⁵ Nagabhushan et al found claw hand 17.3% (410 patients).¹²

Fissures & ulcers are common in our study may be due to agriculture occupation and bare foot walkers. Claw hand is similar to Swarnakumari et al that is due to manual labour.⁵

For global leprosy, grade 2 deformity among newly detected cases, whose reduction is an important indicator for the success of the program, was 5,245 (3.8%) for the reporting year 2016. When compared to the previous year 2015, the global disability rate reduced from 4.5% to 3.8%. In India, however, as per the NLEP website, the percentage of grade 2 deformity among new cases detected has increased from 1.97% in 2005-2006 to 3.10% by 2010-2011 and were 4.61% for the year 2014-2015. NLEP report for year 2015-2016 noted 5851 patients with grade 2 deformity (disability rate of 4.46%) among new leprosy cases, indicating a very marginal reduction.³

Reactions

In our study 7 (7.6%) patients had type-I reaction and 13 (14.2%) patients had type-II reaction. Swarnakumari et al found 8 (4.12%) type-I lepra reaction and 10 (5.15%) type-II lepra reaction.⁵ Arora et al found reactions in 34% of their study group, in that type-I is more common than type-II lepra reaction.¹¹ Our study is similar to Swarnakumari et al type-II reactions are common.⁵

Limitations

Patients included in the present study were only those who attended the outpatient and inpatient departments of DVL of Basaveshwara medical college hospital, Chitradurga. Hence this study gives limited information about the epidemiology of the disease.

The duration of study was only one and half year. So, further studies are required to know the disease status better which helps in planning for preventive measures, early diagnosis and management.

CONCLUSION

Around 2.5 lakhs new cases are recorded each year all over the world, ranking 12th highest cause of morbidity from neglected cases and 11th highest cause of mortality. Perhaps we are failing to understand some important aspects of the disease's natural history. Prospect of elimination has discouraged the research in the field. There is disappointingly very little progress in the development of an effective vaccine for leprosy. We should not be complacent at this stage because it may become a serious health problem again.

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Conflict of interest: None declared

Ethical approval: The study was approved by the institutional ethics committee

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