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Original Research Article

A 10 year retrospective analysis of Hansen's disease patients in an urban leprosy centre of Himachal Pradesh

Renu Rattan[1]*, Gita R. Tegta[2], Anuj Sharma[3], Meena Chauhan[4]

Department of Dermatology, Venereology and Leprosy, [1]Deen Dayal Upadhaya Hospital, [2]Indira Gandhi Medical College, Shimla, [3]Regional Hospital, Bilaspur, [4]Civil Hospital, Rohru, Shimla, Himachal Pradesh, India

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***Correspondence:**
Dr. Renu Rattan,
E-mail: renurattan@gmail.com

ABSTRACT

Background: Leprosy is a chronic disease caused by Mycobacterium leprae, which is a non culturable, slowly multiplying bacillus. The incubation period is variable and may take as long as twenty years for the symptoms to appear. It mainly affects the skin and peripheral nerves, but has a wide range of clinical presentations. The disease is associated with deformities and social stigma.
Methods: Records of Hansen's disease patients from January 2007 to December 2016 were taken and analysed retrospectively. A total of 288 patients were registered during this period.
Results: Out of 288 registered patients, 78.8% were males and 21.2% were females. Maximum number of patients (62.15%) was in the age group of 20-40 years. Multibacillary patients constituted 86.11% and only13.88% were paucibacillary patients. 66.66% patients had grade 0 deformities, 22.56% had grade 1 deformities and 10.76% had grade 2 deformities.
Conclusions: The study recommends that continuous efforts should be made for early detection of cases to prevent spread of disease in the community and to avoid development of deformities.

Keywords: Leprosy, Prevalence, Multibacillary, Paucibacillary, Deformities

INTRODUCTION

Leprosy is a chronic infectious disease caused by Mycobacterium leprae (M. leprae). It usually affects the skin and peripheral nerves. It can also affect muscles, eyes, bones, testes and other internal organs. The rate at which leprosy spreads in a community depends on the proportion of susceptible persons in the population and the opportunities for contact with Mycobacterium leprae.[1] The National Leprosy Control Programme was launched in 1954 in India and converted to National Leprosy Eradication Programme (NLEP) in 1983 with the objective to eliminate leprosy.

Though M. leprae, the causative agent of leprosy was discovered in 1873 by GA Hansen, there was no effective treatment for the disease till 1940s when Dapsone was discovered with anti-leprosy effects.[2] In 1982 multidrug therapy (MDT) came into wide use following the recommendations of WHO. MDT was introduced in India in 1983 and with its help, India achieved the goal of elimination of leprosy in December 2005.[3] Since then, the prevalence rate of leprosy has gradually been decreasing.

A total of 86028 leprosy cases were on record as on 1st April 2016 giving a prevalence rate (PR) of 0.66 per 10,000 population as against 0.69 per 10,000 population in the previous year.[4]

This retrospective study aimed at analyzing the epidemiological scenario and clinical spectrum of leprosy during last ten years in an urban leprosy centre (ULC) i.e. Deen Dayal Upadhyaya Zonal Hospital (DDUZH), Shimla, Himachal Pradesh.

METHODS

Records of all the leprosy patients who attended the ULC in DDUZH Shimla from 1 January 2007 to 31 December 2016 were analysed and evaluated retrospectively. Although this centre is supposed to cater the population of Shimla district of Himachal Pradesh, but patients from adjacent districts also attend this clinic. In addition, migrant population from Nepal and other states of India are also a part of population attending this clinic.

Patients were classified according to the current WHO classification based on number of skin lesions (for treatment purposes in the field) into paucibacillary (PB) leprosy (1-5 skin lesions) and multibacillary (MB) leprosy (6 or more skin lesions).[5] Any patient, who had a positive slit skin smear was considered as multibacillary leprosy irrespective of the number of lesions. All the patients were given paucibacillary (PB) therapy or multibacillary (MB) therapy depending upon the disease spectrum.

RESULTS

A total number of 288 patients attended the clinic from January 2007 to December 2016. These patients included the immigrant population from adjoining states of India and Nepal.

Annual new case detection was analysed year wise. It was observed that number of annual new cases ranged from 20 to 32 (Figure 1).

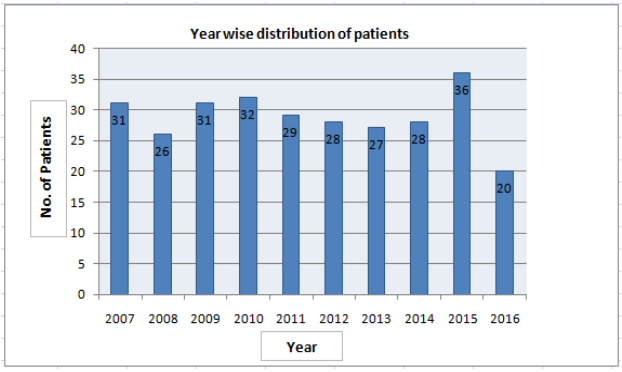

Figure 1: Year wise distribution of newly detected cases.

Among 288 patients who were registered in the clinic during this period 227 (78.7%) were males and 61 (21.2%) were females (Figure 2). Out of 227 males, 11 were male children and out of 61 females, 6 were female children. Males outnumbered females with a ratio of 3.7:1. Maximum number of patients were seen in the age group of 21-30 years (105 in number i.e. 36.45%) followed by 31-40 years (74 in number i.e. 25.69%) (Figure 3).

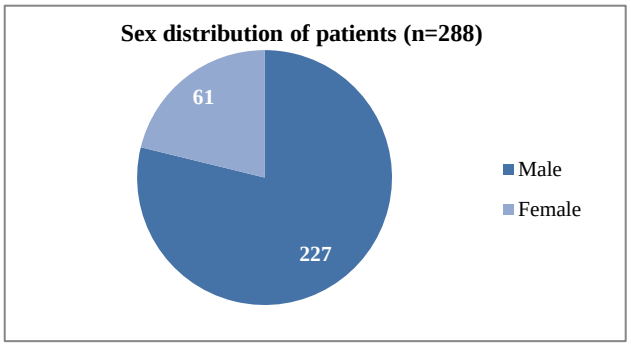

Figure 2: Sex distribution of patients.

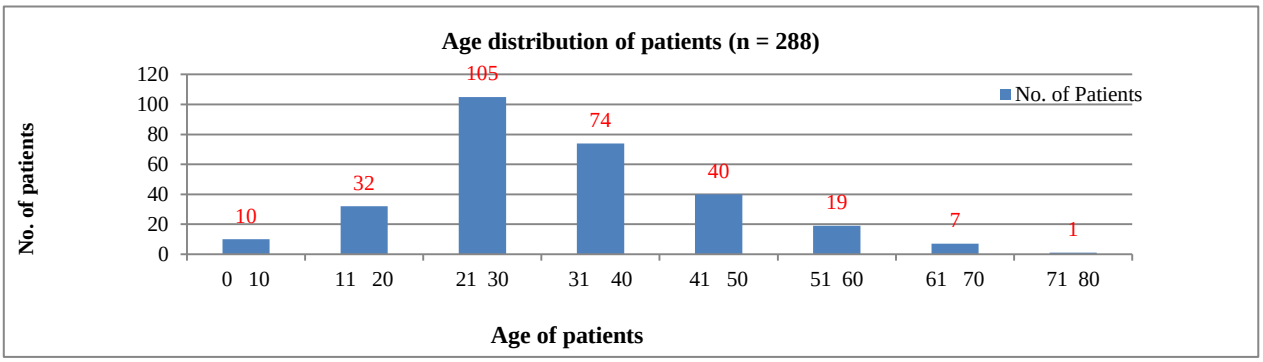

Figure 3: Age distribution of patients.

Number of multibacillary leprosy patients registered during this period was 248 (86.11%) and only 40 (13.88%) patients were paucibacillary leprosy (Figure 4). 192 (66.66%) patients showed grade 0 deformities, 65 (22.56%) showed grade 1 deformities and 31 (10.76%) patients showed grade 2 deformities. It was observed that maximum number of grade 2 deformities was seen in MB patients. None of the patients from PB group had grade 2 deformities.

During these ten years, out of 288 registered patients, 185 (64.23%) were from inside project area (IPA) and 103

(35.76%) were from outside project area (OPA) (Figure 5). Out of these 103 OPA patients, 69 (66.99%) were Nepali nationals and 34 (33%) were from neighbouring states of India i.e. Uttar Pradesh, Bihar, Jharkhand and Uttarakhand.

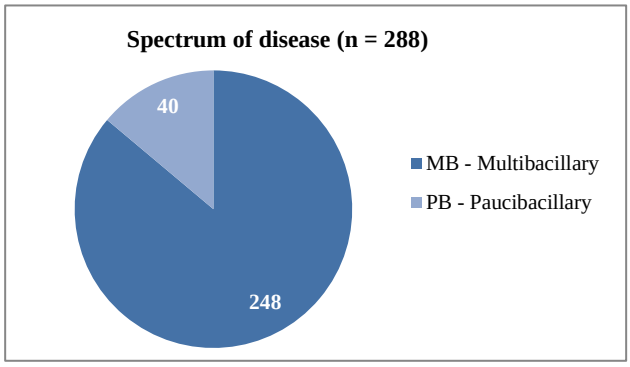

Figure 4: Spectrum of disease.

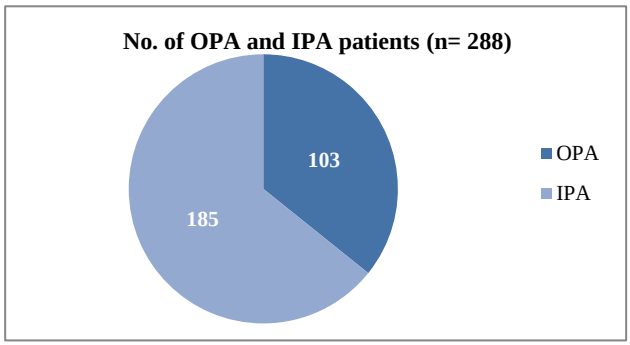

Figure 5: Ratio of OPA to IPA patients.

Patients were given PB or MB treatment according to their disease spectrum. As per record, all the patients were counselled and demonstrated about how to take care of hands and feet. Type 2 deformities were taken care of according to the disability present. Calluses were removed if present; ulcers were treated with antibiotics and proper wound care. Patients with mobile flexion deformities were referred to physiotherapy department where they were taught active and passive exercises. Although no corrective surgery was done for fixed type 2 deformities at the centre due to lack of facility, but patients were referred to the centres with the facility for the same. In patients with ophthalmological involvement, ophthalmology consultation was taken and patients were treated accordingly.

DISCUSSION

Millions of leprosy patients have been cured ever since implementation of MDT. India contributes to more than 50% of new cases detected globally every year. India achieved the goal of leprosy elimination in December 2005. 34 states/ union territories have already achieved the level of elimination i.e. prevalence rate (PR) less than1 case per 10,000 population.[4] One state (Chhattisgarh) and one union territory (Dadra and Nagar Haveli) have remained to achieve elimination.

Himachal Pradesh has been a low endemic area. A prevalence rate of 7.8 per 10,000 population was here in 1991 and elimination was achieved in 2000.[6] Since then, PR has gradually been decreasing and it was recorded to be 0.20 per 10,000 population in March 2016.[7] Similarly, prevalence has been observed to be on decline in other states of India too. However, prevalence is not a very reliable epidemiological indicator of leprosy as it is subjected to a number of confounding factors. It reflects only the registered cases of leprosy for chemotherapy. Patients who remain undetected are not given any account. Also, once a patient completes full treatment as recommended by WHO, he is taken off the record. This is the reason for this noticeable decrease in prevalence rate. At the same time, the annual new case detection rate (ANCDR) graph has not shown that sharp decline.

However, scenario of NLEP indicators is better in Himachal Pradesh as compared to national figures (Table 1).

Table 1: NLEP indicators in Himachal Pradesh versus indicators in India (2015-16).

S.No	Indicators	Himachal Pradesh in comparison to India	Number of cases in Himachal Pradesh (2015-2016)
1	Prevalence rate	0.20 vs. 0.66	
2	ANCDR	2.22 vs. 9.71	166
3	Proportion of children among ANC	2.47% vs. 8.94%	4
4	Proportion of visible deformity among ANC	12.96% vs. 4.60%	21
5	Proportion of MB among ANC	86.41% vs. 51.27%	140
6	Proportion of PB among ANC	13.58% vs. 48.73%	22
7	Proportion of females among ANC	30.86% vs. 38.33%	50

In our study, number of annual new cases registered ranged between 20 to 32. There was no particular declining or inclining trend. But it was observed that, in the years when number of patients was more, the number of OPA patients were more in comparison to IPA patients. This can be explained on the basis of the fact that a lot of migratory population from other states of India and Nepal come to Himachal Pradesh to work in various developmental projects and horticulture activities and their number varies from year to year.

In our study, male patients outnumbered female patients with a ratio of 3.7:1, and majority of patients were in the age group of 20-40 years. It is in accordance with the general trend of Leprosy in India and it is well known that the disease is comparatively less common in children and women.[8]

Maximum number of patients (86.11%) in our study was multibacillary and paucibacillary patients constituted only 13.88%. Similar trend has been observed in the national indicators. MB ratio has increased from 25.9% in 1994 to 51.27% in 2015-16. In the same way, rising trend was observed in studies from Uttar Pradesh and south India.[9,10] The possible cause for this is probably the self-reporting of patient due to development of deformities at a later stage. Another reason for this could be integration. Leprosy work has been shifted from trained leprosy workers of vertical programme to PHC personnel where the skills may not be as good. The cases are not detected early and are reported later after development of visible deformities. This is also reflected by the fact that grade 2 deformities were observed in our study only in MB patients which points towards delayed diagnosis.

CONCLUSION

After achievement of leprosy elimination in India, it was anticipated that the disease burden will decrease gradually. The prevalence rate has actually shown a declining graph but the annual new case detection has not shown an equivalent decline. Also, the number of MB cases has increased in comparison to PB cases. Similar is the case with presence of grade 2 deformities in the new registered cases. The possible cause for this may be a lack of focus on leprosy after its integration with primary health care. Cases are reported only at a later stage after development of deformities on voluntary reporting. Due to change in strategy from active case detection to self-reporting, a large number of active cases in early stages are missed.

This all suggests that active infection is continuing in the community. These MB cases might have transmitted the disease to others before getting detected. This may lead to resurgence of leprosy as a health problem in future as was observed with other infectious diseases like tuberculosis and malaria. As leprosy has a long incubation period and it runs a chronic course, continuous efforts should be made for early detection.

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