

Leprosy Scenario – A 10 Year Retrospective Study of Clinical, Epidemiological and Demographic Data of Hansen's Disease Patients in Dakshina Kannada District, Karnataka, India

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Due to significant disability, social implication, stigma associated with the disease, it is essential to identify the factors which contribute to prevalence of this disease. This study is aimed to analyze the clinical, epidemiologic and demographic data of leprosy cases collected from District Leprosy Office in Mangalore, Dakshina Kannada district over a decade. This is a retrospective study of 847 confirmed leprosy cases treated over a period of 10 years from 2003 to 2013, whose data is available at District Leprosy Office, Mangalore, Dakshina Kannada district, Karnataka in which the records of leprosy patients were analysed. Results: Of these 847 confirmed cases of leprosy majority of paucibacillary cases (70.3%, n=147) were seen in patients less than 20 year age group compared to multibacillary leprosy (79.6%, n=43) which was more among patients aged 60 and above. Majority (66.1%, n=379) of the MB cases were reported among males, whereas among females the distribution of leprosy cases was almost similar (PB vs MB that is 49.6% vs 50.4%). Grade 1 disability was seen in 57% of the cases and grade 2 disability was seen in 28%. About 15.3% of the cases were children (130 cases). In our study, year wise distribution of recorded number of cases presented a significant drop from year 2003 to 2006. However, the drop from 2007 to 2013 is marginal. The number of child cases and disability rates were higher, suggesting active transmission of the disease in the community. Programmes aimed at early diagnosis, enhancing supervision, promoting health education, and monitoring treatment is the need of the hour specially to reduce the disabilities as fast as possible.

Keywords : Paucibacillary, Multibacillary, Leprosy, South India, Demographic

Introduction

Leprosy is one of those few chronic infectious diseases that is associated with serious physical

and functional disabilities affecting the skin and peripheral nerves.

With the advent of multidrug therapy (MDT), the

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prevalence and incidence of the disease has drastically reduced. The number of new cases reported in India has decreased from 1.6 lakh reported in 2005 to 1.2 lakh cases in 2011. However a mild increase in leprosy cases (1.3 lakh) was reported in 2012, of which 67,268 cases were multibacillary leprosy cases (WHO 2013). Compared to more than 5 million cases diagnosed in the year 1990, only 244,796 new cases of leprosy were detected globally in the year 2009 (WHO 2010).

The National Leprosy Eradication Programme is a centrally sponsored Health Scheme of the Ministry of Health and Family Welfare, Govt. of India. According to the NLEP data on August 2007, 96228 leprosy cases were on record with a prevalence rate of 0.83/10000 population. A total of 62610 new cases were detected from April to August 2007 in India (NLEP 2007). The prevalence of leprosy in Karnataka in 2006-2007 was 0.5 per 10000 (Govt of Karnataka website). Pictures has changed since then (NLEP Annual Reports 2011-12, 2015-16, 2017-18).

Among the African and Southeast Asian countries that report the highest numbers, India leads the list by contributing the majority of the cases. This situation is deplorable, considering the fact that on January 30, 2006, India announced the elimination of leprosy at the national level (Dhillon 2006). About 127,295 new cases are still detected at the end of the year 2011 in India with more than 10% child cases, indicating active transmission of leprosy in Indian communities (NLEP 2011-12).

In India, during the 1980s prior to the introduction of MDT, the southern states of Tamil Nadu and Andhra Pradesh had the highest prevalence. Today, the endemic and hyperendemic areas of India are in the north and east. Several reasons could be cited for south Indian states to have reached elimination faster: Earlier implemen-

tation of MDT and better coverage, and timely release from treatment (RFT) are the major service factors (Rao 2006).

Though the prevalence of leprosy in South India seems to be lesser than north India, the trend seems to keep changing due to rapid industrialization and migration especially where the study was conducted. Because of these dynamics it is important to analyse the changes in different parts of the country so that area specific interventions could be planned. With this background the present record based study was carried out to estimate the number and understand the profile of leprosy cases reported from 2003 to 2013 in Dakshin Kannada area.

Materials and Methods

This is a retrospective study in which the records of leprosy patients were analysed. Institutional Ethics Committee clearance was taken. Patient data were collected from District leprosy office in Mangalore, Dakshina Kannada district, Karnataka. All cases of Hansens disease (old and new) from January 2003 to March 2013 were included in the study. The data collection and analysis was done from 1st August to 30th September 2014.

The collected data was entered in MS Excel and was analyzed using SPSS (statistical package for social sciences) version 11.5.

Results

A total of confirmed 847 cases of leprosy were reported during span of ten years (2003-2013). The distribution of cases over a span of 10 years in the District leprosy office, Dakshina Kannada district is shown in Fig. 1. The figure shows that number of leprosy cases have decreased from 2003 to 2013 with marginal inter year variation from 2006 to 2013.

Majority (67.7%, n=573) of the cases were males. The mean age of study participant is 34.3 ± 16.2

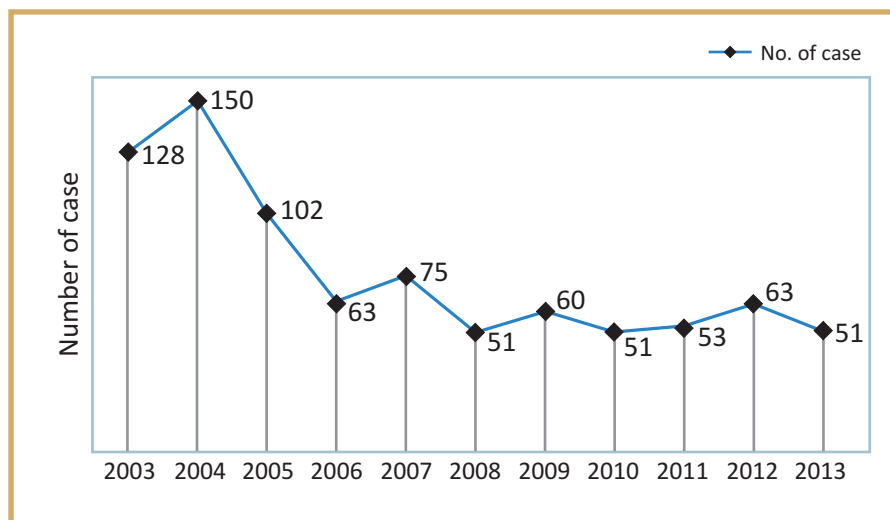


Fig. 1 : Number of leprosy cases reported in Mangalore district from 2003 to 2013.

Table 1 : General information of study population

Variables	n (%)
Age (in years):	
≤ 15	130 (15.3)
16-30	258 (30.5)
31-45	236 (27.9)
46-60	169 (20.0)
≥ 60	54 (06.4)
Gender :	
Female	274 (32.3)
Male	573 (67.7)
Religion :	
Hindu	646 (76.2)
Christian	069 (8.1)
Muslim	128 (15.1)
Jain	004 (0.5)
Place of Residence :	
Dakshina Kannada	606 (71.5)
Udupi	11 (1.3)
Others	230 (27.1)

Table 2 : Factors associated (age group, gender and morbidity) with type of leprosy (according to WHO classification)

	Type of leprosy		Total N (%)	Pearson value
	Paucibacillary n (%) N=330	Multibacillary n (%) N=517		
Age group (years)				
≤ 20	147 (70.3)	62 (29.7)	209	p <0.05
20-60	172 (29.5)	412 (70.5)	584	
≥ 60	11 (20.4)	43 (79.6)	54	
Gender				
Male	194 (33.9)	379 (66.1)	573	p <0.05
Female	136 (49.6)	138 (50.4)	274	
Morbidity				
Present	7 (10.0)	63 (90.0)	70	p <0.05
Absent	323 (41.6)	454 (58.4)	847	

years. The general information of study population is shown in Table 1.

Paucibacillary status was seen in 31% of the cases and multibacillary in 69% of the cases. Majority of paucibacillary cases (70.3%, n=147) were seen in patients less than 20 year age group compared to multibacillary leprosy (79.6%, n=43) which was more among patients aged 60 and above. This association between age group and type of leprosy was found to be statistically significant

(p < 0.05). Factors associated (age group, gender and morbidity) with type of leprosy (according to WHO classification) is shown in Table 2.

On comparing the type of leprosy cases across gender, majority (66.1%, n=379) of the MB cases were reported among males, whereas among females the distribution of leprosy cases were almost similar (PB vs MB that is 49.6% vs 50.4%). Morbidity and disability description is shown in Table 3.

Discussion

The study provides information on confirmed cases of leprosy registered in District Leprosy office, Dakshina Kannada district (N=847). Among the recorded leprosy cases, males were more than females. The data recorded by NLEP progress report shows that Karnataka is among the 33 states/union territories which has prevalence of leprosy less than 1 per 10,000. The prevalence rate in India in the year 2014-2015 was 0.69 per

Table 3 : Morbidity and disability distribution (n=70)

Morbidity/Disability description	n (%)
Grade 1	40 (57.1)
Grade 2	20 (28.5)
Type 1 reaction	1 (1.4)
Type 2 reaction	6 (8.5)
Grade 1 and type 1 reaction	1 (1.4)
Grade 2 and type 2 reaction	2 (2.8)

10,000 population whereas in Karnataka it was 0.42 per 10,000 and ANCDR was 5.11/100,000, child case rate per 100,00 was 0.44, grade 1 deformity was 9.23 and grade 2 deformity was 4.41 (NLEP 2014-15). Prevalence rate for year 2017-2018 is 0.34 per 10,000, and the percentage of grade 2 disability among new cases is 4.05% and majority of cases detected were males (67.7%) (NLEP 2017-18). India continues to account for 60% of new cases reported globally each year and is among the 22 “global priority countries” that contribute 95% of world numbers of leprosy warranting a sustained effort to bring the numbers down. In the year 2007, new cases detected in India were 137,685, and nine years later in 2016, the number remained almost the same at 135,485, a significant increase over the 127,326 new cases detected in 2015. This increase in new cases is attributed by NLEP to their recent strategy of innovative Leprosy Case Detection Campaign (LCDC), which resulted in the detection of 34000 new cases in 2016 from highly endemic pockets, which accounted for 25% of annual new cases (WHO 2017). Of the total new cases detected, almost 50% were multibacillary leprosy and the child rate was about 8.7%, which was similar to the previous year's figures, both indicating continued transmission of leprosy in the community. The LCDC also resulted in increasing the number of districts with a prevalence of >1/10,000 in the country, reminding us of the value of active case finding strategies (Rao and Suneetha 2018).

Our study shows that there is significant association of clinical type of leprosy with age, gender and morbidity developed in individuals. In this study in the younger age group paucibacillary leprosy cases were more, while in older age group, multibacillary leprosy was more commonly reported. About 15.3% of the cases were

children (130 cases). Association of leprosy and the elderly may be due to longer incubation period or due to age-related changes in immunity causing increased vulnerability to infectious disease. In a study by Singhal et al (2011) done in Delhi, 9.6% of the leprosy patients were children <14 years of age. In a study by Chaithra and Bhat (2013) done in Mangalore in a tertiary care centre, of the total 280 new leprosy cases registered in the institute between 2005 and 2013, 36 were child cases up to 14 years of age. The average child proportion over a period of 8 years in the post-elimination phase was 12.86%. Although the average national child leprosy rate is approximately 9%, the proportion of child cases was more than 10% of new cases detected in eleven states/UTs of India, with 6 of them (Tamil Nadu, Punjab, Dadra & Nagar haveli, Bihar, Mizoram, and Arunachal Pradesh) showing very high rates ranging from 14% to 23%. In a few of these states, the high multibacillary proportion, and in others a difficult to reach terrain could contribute to continued transmission (Rao and Suneetha 2018).

Among males the majority of cases were multibacillary but in females there was equitable distribution of both types of leprosy. In the total number of patients who had one or more morbidity, maximum were multibacillary, this may be attributed to more complications occurring during prolonged illness and also multi organ involvement. In a study by Rao et al (1996) it was observed that the initial delay in identifying the skin changes as the symptoms of the disease were higher for females (29 months) than males (24 months). The social impact on daily life was more severe for females than males as revealed by the isolation from daily activities, restrictions on participation in familial functions, restrictions on touching children. Morbidity profile done in our study showed Grade 1 (57.1%) disability was in

majority followed by grade 2 (28.5%). In a study done in Mangalore by Bhat et al multibacillary cases were more common (54.35%) among the new cases attending the out-patient department in comparison with the paucibacillary cases. Males outnumbered females. Lepra reaction was present in 16 (34.78%) at the time of presentation; occurrence of type 1 reaction (26.09%) was most frequent compared to type 2 reaction (8.7%) among the new cases which was different from our study (Bhat and Chaitra 2013). In a study done in Delhi by Chabbra et al (2015), multibacillary leprosy was the most common clinical type (86.9%). WHO grade II deformities were diagnosed in 37.9% which was more than our study. In another study done by Nayak et al (2017) in Mangalore, among the 92 patients studied, it was found that majority of the patients (60.86%) had WHO grade 0 or grade 1 deformity. Those with visible deformities (WHO grade 2 deformity) constituted 39.13% of the study population. In India, however, as per the NLEP website, the percentage of G2D 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 G2D (disability rate of 4.46%) among new leprosy cases, indicating a very marginal reduction. Continued high G2D rate among new cases indicates that leprosy is being detected late and there may be hidden cases in the community. NLEP launched Sparsh programme to improve the strategy to detect such cases (NLEP Sparsh guidelines). NLEP report for year 2015–2016 mentions that, out of the total 11,230 new child cases detected during 2015–16, the number of child cases with G2D was 162 (1.4%) (NLEP 2015-16). One of the key reasons for the rise in disability is a delay in diagnosis of leprosy and lepra reactions which lead to persistent neuritis and ultimately to

disability. The higher rates of child cases and disability in our study point out to the fact there maybe some active transmission going on in the community even though the overall data show control of disease transmission. The reasons could be migration, industrialization, implementation of leprosy programmes like leprosy case detection campaigns (LCDC) which resulted in detection of many new cases from highly endemic pockets in some parts of the country. There have been varying rates of new cases and prevalence in different parts of the country after initial control over the disease over many years which suggest that control over this disease is far from over.

Conclusion

In our study year wise distribution of recorded number of cases presented a significant drop from year 2003 to 2006. However, the drop from 2007 to 2013 is marginal. The trend of cases in Mangalore is almost similar to national trend of leprosy. Paucibacillary being reported more in younger age group and multibacillary cases were more in males whereas there was equal distribution of cases in females, it was also seen that morbidity was associated more with multibacillary cases. Leprosy is still one of the major public health problems in India. This highlights the need to continue research on leprosy, prioritizing studies concerning detection of relapses, drug resistance and diagnostic measures for early detection. Recognizing clinic-epidemiological clues from regional studies like ours will help in planning preventive strategies, designing effective control and elimination initiative.

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