



STATUS OF OF LEPROSY AT TERTIARY CARE HOSPITAL IN INDUSTRIAL AREA OF CHHATTISGARH: A RETROSPECTIVE ANALYSIS

Dermatology

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ABSTRACT

Introduction: The registered global prevalence of the disease at the end of 2018 was 0.24%. India has succeeded with the implementation of MDT in bringing the national prevalence down to "elimination as a public health problem". In Chhattisgarh prevalence of leprosy is shown to be high due to some obvious reason of poverty, overcrowding low socioeconomic condition with uneven distribution of healthcare infrastructure. This study was carried out in an intention to know the trend and pattern of leprosy patient coming at tertiary care hospital in Industrial area Bhilai of Chhattisgarh. **Methodology:** This cross sectional study was done during Jan 2013 to Dec 2020 by using secondary data available at Department of Dermatology, JLNH Research Centre. All the confirmed cases with signs and symptoms of leprosy were reviewed and analysed. For categorization of leprosy cases we used Indian system of classification. **Results:** A total of 179 leprosy cases were studied who were registered during 8 years (i.e. Jan 2013 to Dec 2020). The mean age of the patients was 53.24 years. Female preponderance was noted among study subjects. Majority (45.8%) of them were resident of Sectors of township. Multi Bacillary leprosy was the most common clinical type observed noted in 87.7% (157 patients) patients. As per Indian classification system 51.4%, 19.55%, 11.17%, 10.6% 6.15% and 1.12% were diagnosed as tuberculoid, Boderline, Maculoanaesthetic, Indeterminate, Lepromatous and neuritic type respectively. Deformity of Grade 2 found in 2.79% (5) cases with most common site of involvement was hand. 8.9% (16 patients) could not completed their MDT treatment. **Conclusion:** Preponderance of Multibacillary type, Default in treatment, deformity and presence of leprosy in paediatric age group indicates continued transmission in the study area. Although the condition has improved a lot in last 40 years, there is still a scope of improvement by early diagnosis, prompt treatment and strong follow up system.

KEYWORDS

BACKGROUND

Leprosy is one of the oldest diseases of the mankind. As per World Health Organization (WHO), a total of 208 619 new cases of leprosy were reported in 2018 across the globe, compared with 211 009 cases (representing a slight global decrease of 1.2%) in 2017. The registered global prevalence of the disease at the end of 2018 was 0.24%. India, which has the highest burden of the disease, has reported a decreasing number of new cases for the past 2 years, by nearly 15 000 cases (135 485 in 2016 to 120 334 in 2017–2018). India has also reported reductions in the numbers of new paediatric cases, to less than 10 000 (9227) from more than 10 000 previously. Due to 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. This has been largely the outcome of the country's national leprosy programme conducting active case detection campaigns with the involvement of female community health volunteers, resulting in high coverage over the past four years. [1] Among the states in 2018, the highest number of leprosy cases were reported from Bihar (14,338 cases) followed by UP (12,583), Maharashtra (9,836 cases), and West Bengal (9,175 cases). The highest prevalence of leprosy was seen in Chhattisgarh (2.25/10,000 population) followed by Odisha (1.38/10,000 population). Highest Grade 2 D was seen in Meghalaya (31.25%) followed by Daman and Diu (26.32%). In total, 10 states and union territories had Grade 2 disability more than 10% in 2017 – 2018 as compared to 11 states in 2016 – 2017. [2,3,9] With this background, we studied the status of leprosy in our area Bhilai, an industrial city which comes in Chhattisgarh. So, a retrospective study of new leprosy patients registered with the Department of Skin and Venereology in Jawaharlal Nehru Hospital and Research Centre, Bhilai was carried out during period of January 2013 to December 2020. The aim of the study was to collect the data regarding occurrence and distribution pattern of leprosy among the employees, their dependents and retired employees. This would be an indicator for effectivity of our leprosy eradication programme and provide vital input while planning a leprosy control programme.

MATERIAL AND METHODS

This cross sectional study was done during Jan 2013 to Dec 2020 by using secondary data available at Department of Dermatology, JLNH

Research Centre. Record of all confirmed cases with signs and symptoms of leprosy were reviewed and analysed. For categorization of leprosy cases we used Indian system of classification.

RESULTS

A total of 179 leprosy cases were studied who were registered during 8 years (i.e. Jan 2013 to Dec 2020) (Table 1). The mean age of the patients was 53.24 years. Of them 63.69% and 2.79% were in 46 to 75 yrs of age and children respectively (Table 2). Female preponderance was noted among study subjects with 1:1.1 male to female ratio (Table 3). Majority (45.8%) of them were resident of Sectors of township and 33.5% were from periurban area. MB leprosy was the most common clinical type noted in 87.7% (157 patients) patients. As per Indian classification system 51.4%, 19.55%, 11.17%, 10.6% 6.15% and 1.12% were diagnosed as tuberculoid, Boderline, Maculoanaesthetic, Indeterminate, Lepromatous and neuritic type respectively (Table 4). Grade 2 deformity was found in 2.79% (5) cases as hand involvement was most common. 8.9% (16 patients) could not completed their MDT treatment. Mostly they are seen in the dependent population (46.9%) and least among employees (15.1%).

Table 1: Age and Sex wise distribution of leprosy cases under study.

Age in Years	Number of Cases	Percentage	M	F
1-15	5	2.79	5	0
16-30	24	13.41	13	11
31-45	22	12.29	5	17
46-60	59	32.96	24	35
61-75	55	30.73	27	28
76-90	14	7.82	11	3
Grand Total	179	100.00	85	94

Male	85
Female	94

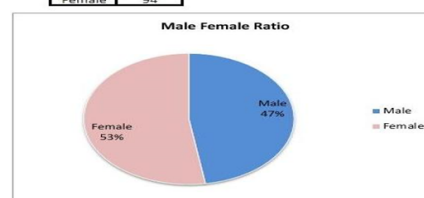
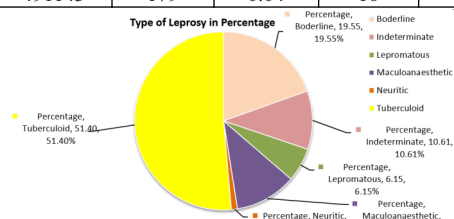


Fig 1 Sex distribution of Patients of leprosy among subjects under study.

Table 2 Year wise hospital attendance of Leprosy cases and defaulted treatment by study subjects during study period.

Year	Total enrollment of skin OPD	Total cases of leprosy	Percentage	Left Treatment	Percentage
2013	68868	17	0.02	0	0
2014	70150	44	0.06	1	2.3
2015	72782	18	0.02	1	5.6
2016	70930	29	0.04	5	17.2
2017	67260	25	0.04	5	20.0
2018	57702	19	0.03	4	21.1
2019	51967	20	0.04	0	0.0

2020	31484	7	0.02	0	0.0
Total	491143	179	0.04	16	8.9

**Fig 2 Distribution of leprosy cases reported in JLNRC Bhilai as per Indian Classification.****Table 3 Age wise pattern of Leprosy cases observed in OPD during study period (i.e. 2013-2020) as per Indian system of classification**

Age in Years	Boderline	Indeterminate	Lepromatous	Maculoanaesthetic	Neuritic	Tuberculoid	Total	Percentage
1-15	1	1	0	0	0	3	5	2.79
16-30	4	5	0	2	0	13	24	13.41
31-45	7	2	0	4	0	9	22	12.29
46-60	9	7	4	6	1	32	59	32.96
61-75	10	3	7	5	1	29	55	30.73
76-90	4	1	0	3	0	6	14	7.82
Total	35	19	11	20	2	92	179	100

Table 4 Sex wise pattern of Leprosy cases observed in OPD during study period (i.e. 2013-2020) as per Indian system of classification

Type of Leprosy	M	F	Total	Percentage
Boderline	16	19	35	19.55
Indeterminate	6	13	19	10.61
Lepromatous	8	3	11	6.15
Maculoanaesthetic	6	14	20	11.17
Neuritic	1	1	2	1.12
Tuberculoid	48	44	92	51.40
Grand Total	85	94	179	100

Table 5: Year wise pattern of Leprosy cases reported among employee/dependent in LNRC Bhilai during study period.

Year	Dependent	Employee	Ex Employee	Grand Total
2013	7	2	8	17
2014	22	11	11	44
2015	9	3	6	18
2016	16	1	12	29
2017	9	6	10	25
2018	9	2	8	19
2019	10	1	9	20
2020	2	1	4	7
Grand Total	84	27	68	179

Table 6. Geographical distribution pattern and type of Leprosy cases in study area during study period (i.e. 2013-2020).

Area	Boderline	Indeterminate	Lepromatous	Maculo anaesthetic	Pure Neuritis	Tuberculoid	Total	%
Sector Area, Bhilai	14	6	2	10	1	49	82	45.81
Camp area, Bhilai	7	4	1	5	1	11	29	16.20
Risali, Bhilai	1	4	1	1		6	13	7.26
Durg	2	3	2	2		9	18	10.06
Village	4	0	5	1		11	21	11.73
Urban, Bhilai	2	1				3	6	3.35
Raipur	1	0					1	0.56
Dalli Rajhara Mines	3	0				2	5	2.79
Nandini Mines	1	1		1			3	1.68
Nellore, AP						1	1	0.56
Total	35	19	11	20	2	92	179	100

DISCUSSION:

India is endemic for leprosy with significant burden in Chhattisgarh. Bhilai is an industrial city of Chhattisgarh, running 860 bedded hospital by Bhilai steel Plant as per mandate of Corporate Social Responsibility for their employee at Jawahar Lal Nehru Hospital and Research Centre in Chhattisgarh state. This hospital is providing tertiary care health services to its employee, their dependents, retired persons (Ex- employee) and others. It also caters health services in associated mine area through peripheral health centres to approximately 5 lakh population. The present retrospective study of 8 years reveals that new leprosy patients reported 2 – 6 per 10,000 population attending Skin OPD at JLNRC Bhilai with mean notification was 3.55 per 10,000. This indicates that the incidence of disease has reduced markedly due to improved living standard of the people and proper implementation of NLEP. Most common age of manifestation is 20–30 year age in high-burden communities, where active disease transmission persists. We observed that most (63.69%) of the cases in our study were of middle and elderly population with a mean age of 53 years which is slightly higher than other studies (5,7) done by different authors in the same study settings. As the burden in community decreases, it is seen more in older age groups.(6)This is occurring in our case. So, in our area active transmission of disease is decreasing. Paediatric cases indicates active transmission of infection in the community which we found low (2.79%) in our study and in small proportion of affected population in comparison to other studies (5,7). No new case under the age of 15 years have been registered since last 6

years. This is a very encouraging sign as far as transmission of disease is concern as it indicates recent transmission of infection in the community (1). The disease mostly involved the dependent family members of the employee comprising about 46.9% cases whereas only 15% working employees have suffered from leprosy. This is contradictory to the normal belief that leprosy is more common in persons who are mainly exposed to external environment. The study revealed that maximum cases come from the sector area (45.8%) within the Bhilai township. Then comes the congested colonies of Camp area, Risali and Durg which is periurban part of township adjacent to the township area, comprising 33.52%. 26.2% patients come from Village and mines area. Our study showed female preponderance with 53 % female patients where as in the previous study in 1983, the male to female ratio was 3:2 and cases have risen sharply in last 2 years in same population. Increase notification of cases among female might be mostly due to increase in awareness in them which same observation was made by Tiwary et al. in similar study in the past.(8) Multi Bacillary was the most common microbiological confirm cases were (87%) observed in this study. High proportion of MB cases in our study indicates existence of disease is still persistent in pockets of population might be due to undiagnosed leprosy patients for a long time.(7) Tuberculoid leprosy was the commonest clinical type among the adult and in children, 51% and 66% respectively during study period as in 1983 same observation was made by authors in a similar study.(4) Histopathological examination was done in doubtful cases only showed significant confirmed by histopathological

examinations done in the institute with 67% accuracy. Very few cases of deformity seen in leprosy patient whereas no deformity observed in last 5 years is positive sign, this might be due to early diagnosis and starting MDT. Similar kind of findings noted by author with reduced no of cases with deformity proportion from 18.18% to 2.8% in last 25 to 30 years.(4)

CONCLUSION:

To conclude, the 3 principal targets of the Global Leprosy Strategy to be reached by 2020 are 0 new paediatric cases with G2D, 0 countries with laws or legislation that allow discrimination on the basis of leprosy.(1) Our datas are encouraging and there is a lot of improvement in last 40 years .With no paediatric cases since last five years and 2.79% G 2 disability rate, we are definitely into the right track to eradicate leprosy in this area.

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