

Clinico-Epidemiological Study of Childhood Leprosy in Post Elimination Period at a Tertiary Care Hospital

T V Narasimha Rao¹, Amruthavalli Talluri²

ABSTRACT

Introduction: Childhood leprosy is important marker of the status of the ongoing leprosy program, as it is an indicator of active disease transmission in the community, despite the achievement of the elimination status of leprosy in the year 2005. The study was done to evaluate the epidemiological and clinical profile of childhood leprosy and to assess the changing trends if any in the post-elimination period.

Material and methods: A retrospective analysis of newly registered patients aged less than 15 years at leprosy outpatient in the department of Dermatology, Venereology and Leprosy, from January 2014 to December 2018 at a Government General Hospital, Vijayawada. Year wise data were analyzed according to age, sex, geographic area, clinical spectrum, reaction, deformities, and contacts.

Results: During the study period, a total of 481 patients were registered, out of which 66 (13.72%) cases of childhood leprosy was observed. Multibacillary (MB) cases constituted a total of 68.18% while Paucibacillary (PB) constituted a total of 31.82%. The M: F noted was 1.4:1, urban to rural children were 26 and 40. The majority of the patients were in the age group of 11 to 15 years.

Conclusion: Rate of increase (doubled) in childhood leprosy is alarming, as an immediate and preventive measure, early diagnosis of childhood leprosy needs to be improved. Further, the importance of complete treatment, follow up, consequences, contact tracing should be stressed on.

Keywords: Child Leprosy, Active Transmission of Leprosy, Presentation of Leprosy, Preventive Measures

INTRODUCTION

Leprosy is a chronic infectious disease caused by *Mycobacterium leprae*, affecting humans for over 4000 years. The burden of leprosy in India had decreased with the introduction of Multidrug therapy (MDT) in the year 1983. India has achieved the Prevalence rate goal of 1 per 10,000 population in December 2005.¹⁻⁴

According to the National Leprosy Eradication Program (NLEP) report of March 2018 – The total number of new cases detected in India is 1,26,164. Among which child cases are 12238 (9.70%). In Andhra Pradesh, 4695 new cases detected, among which child cases account for 464 (9.88%), Vizianagaram is the district in Andhra Pradesh with the highest incidence of child cases, which account for 910 (19.39%).⁵⁻⁹

A high proportion of childhood cases signifies active and recent transmission of the disease, making it a robust epidemiological indicator to assess the burden of disease in the community. Taking into consideration the above scenario

the present study was undertaken in the department of DVL, Government General Hospital, Vijayawada, Andhra Pradesh, India and to evaluate the epidemiological and clinical data of patients diagnosed with leprosy less than 15 years of age, and to assess the changing trends in the post-elimination period.

MATERIAL AND METHODS

This study was done by retrospective analysis from secondary data from registers and records of leprosy patients attending the department of Dermatology, Venereology and Leprosy in our hospital from January 2014 to December 2018.

Parameters such as age, sex, site, number of skin lesions, the presence of contacts were studied.

Slit-skin smear (SSS) was done in all children and histopathological examination was done as and when needed. Patients were classified into Indeterminate (I), True Tuberculoid (TT), Borderline Tuberculoid (BT), Borderline Borderline (BB), Borderline Lepromatous (BL), and Lepromatous Leprosy (LL). They were also grouped as Paucibacillary (PB) & Multibacillary (MB) and treated accordingly.

STATISTICAL ANALYSIS

Data analysis was done using Excel. There were no exclusions, all the patients diagnosed with leprosy from January 2014 to December 2018 were included in the study.

RESULTS

Out of 481 leprosy patients, 66 (Figure 1) were children which account for 13.72%, males were more commonly affected than females in a ratio of 1.4:1, children who hailed from rural areas were most affected, accounts for 60.61%, and urban children were 39.39%.

The most common age group (Figure 2) that affected was

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11 to 15 years accounting to 41 (62.12%), followed by 6 to 10 years, which accounts for 21 (31.82%), and the rest of 4

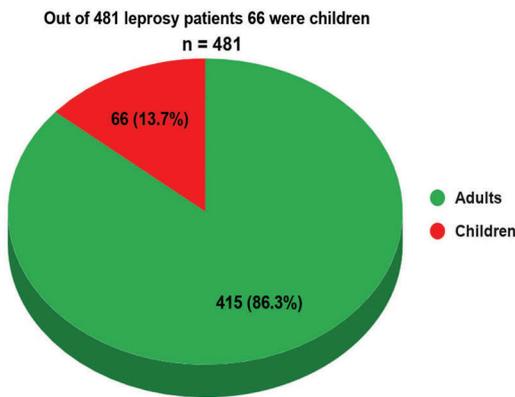


Figure-1: Distribution of leprosy patients according to adults and children

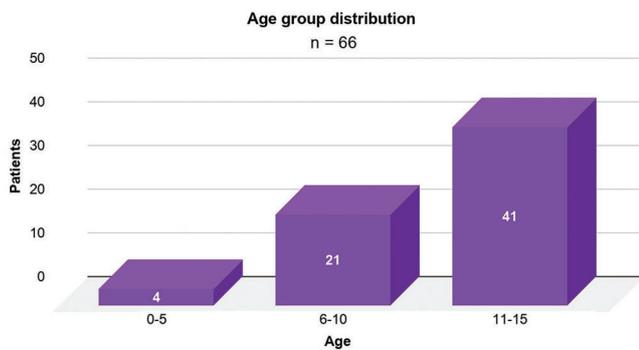


Figure-2: Distribution of leprosy patients according to age-group

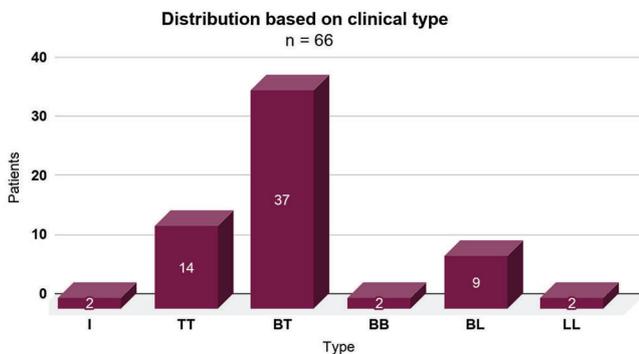


Figure-3: Distribution of leprosy patients according to Clinical type

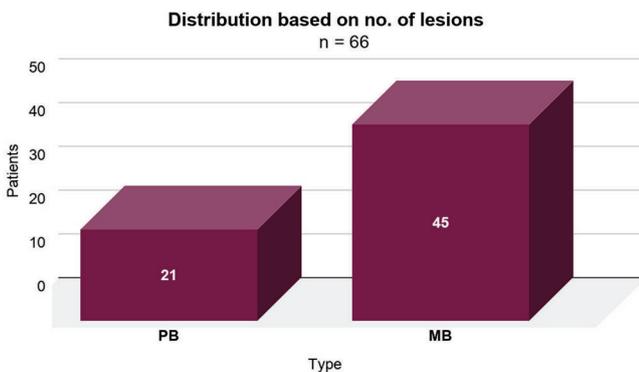


Figure-4: Distribution of leprosy patients according to number of lesions

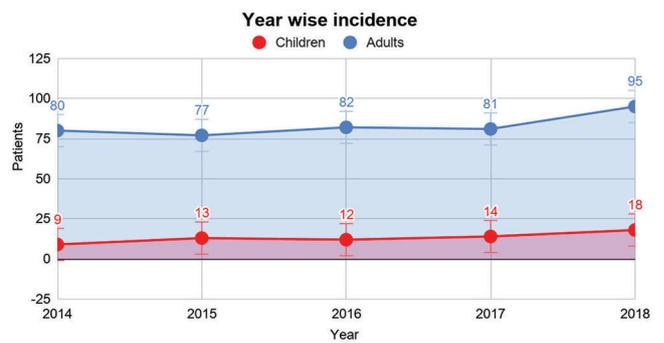


Figure-5: Year wise incidence of leprosy patients



Figure-6: Borderline Tuberculoid Leprosy



Figure-7: SSS on lesion

(6.06%) children were aged less than 5 years. The most common clinical type observed was BT (37) leprosy (Figure 3) followed by TT (14). The most common type based on the number of lesions (Figure 4) observed was MB (45), followed by PB (24).

Patch is the most common lesion type observed in our study, the year-wise incidence (Figure 5) of new childhood leprosy cases had doubled from 2014 to 2018. In the year, 2014, there were 9 cases observed, whereas this had increased to 18 in 2018.

Slit-smear skin (SSS) test was done for all the children using the standard technique, further classification was done by using the method of Ridley-Jopling. SSS was positive in 20 children, amongst which 3 children were seen having positivity of 3+, and 17 children were having positivity of 1+.

During the study, intrafamilial contact history was seen in

12 (18.18%) children. Leprosy reactions of both the types were seen, Type 1 reaction was observed in 7 (10.61%), whereas Type 2 was seen in 2 (3.03%) children. Ulnar nerve (33) was the commonest nerve involved, followed by lateral popliteal (21) nerve. Ulnar claw deformity was seen in 6 children, followed by foot drop in 2 children.

DISCUSSION

Leprosy is a chronic infectious disease caused by mycobacterium leprae which affects the skin, peripheral nerves, and other tissues. It presents clinically by a spectrum of hypopigmented patches, peripheral nerve thickness, anaesthesia, lepra reactions, deformities, disabilities, and death. Though the country of India achieved the goal of elimination by December 2005 there are significant new cases detected in the post-elimination era. Perhaps, for the above reasons the strategy for years 2016 to 2020 is built on three pillars like (i) to strengthen government ownership, coordination, and partnership; (ii) to stop leprosy and its complications; and (iii) to stop discrimination and promote inclusion. We have made an attempt to analyse data of our hospital from January 2014 to December 2018 to find out the impact in the post-elimination period.

Year-on-year, admitted number of new leprosy cases is continuing, at large, males were more affected than females (1.4:1), which is in accordance with the study of Sachdeva, et al.⁵ However, the rate at which leprosy is spreading amongst children is quite alarming, during the study, the total number of new leprosy cases in children observed to be doubled just in span of 5 years, precisely, it had increased from 9 children in the year 2014 to 18 children in the year 2018. The largest age group observed (62.12%) was 11 to 15 years, which is similar to the study of Ramesh Marne Bhat, et al.² Patch was common clinical presentation observed, this is similar to the study of M Jain, et al.⁸

Borderline Tuberculoid (56.1%) (figure-6) spectrum was the common type observed followed by True Tuberculoid (21.2%), same as depicted in the study of Anand J, et al.¹⁰, out of 66 children in our study BT (56.1%) was common followed by TT(21.2%), BL(13.6%), I, BB, LL(3.0%). No cases of pure neurotic leprosy were seen. Patients with MB (68.18%) were more common in our study, however, this observation seems to be in contrast to the study of Sunil, et al.⁷ in central India.

Slit-smear Skin test (SSS, figure-7) was positive in 30% of patients which was in accordance with the study of Singal, et al.¹¹, Type 1 reaction was observed more (10.61%) in our study similar to Singal, et al.¹¹, Ulnar nerve (50%) was the commonest nerve involved in concordance with the study of A G Rao, et al.⁹, during our study we observed Ulnar claw (9.09%) as the commonest deformity which was also shown by Chaitra, et al.²

In the study, positive contact history was present in 18.2% of patients, this seems to be on par with the study of Sachdeva, et al.⁵, positive contact history was intrafamilial, presence of intrafamilial contact history suggests strengthening of screening of households, schools, and further proper health

education is required to prevent disease transmission.

CONCLUSION

In our study, the proportion of the increase in new patients is 9 to 18 (doubled) in a span of 5 years and an increase in MB patients suggest active infection and changing trends in the post-elimination era. Reports from different parts of the country depict unturned curve in the epidemiology of childhood leprosy which shows active transmission and delayed diagnosis in this age group. Hence, there is a need for more effective preventive measures, contact tracing, early detection, follow up for adherence to treatment and prevention of complications in children to sustain elimination as the consequences of leprosy extend far beyond the infection to affect the individuals, their families, and society at large.

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