

Original Research Article

A Population Based Survey to Assess the Scenario of Leprosy in a High Endemic Block in South Tamilnadu

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ABSTRACT

The decentralisation of leprosy programmes has been implemented subsequent to the achievement of leprosy elimination in our country. But the annual case detection is still high at certain high endemic areas and deserves special attention.

Alanganallur Block of Madurai District, Tamil Nadu is identified to have high Annual New Case Detection Rate than State and National averages in the year 2012-2013. Hence a population based survey was conducted to detect the unreported new cases at Alanganallur block of Madurai district, Tamil Nadu for the year 2013-2014 and the ANCDR was compared with that of the previous and the subsequent years.

The survey was conducted with the help of trained ASHA. The active surveillance resulted in the increase in the ANCDR during the survey year and also a significant fall in the next year which is an expected phenomenon after any active surveillance. The study threw light on the need for the intensification of IEC activities as well as involvement of grass root workers after adequate training to compensate for the withdrawal of active case detection which has occurred after the decentralisation programmes.

Key words: Leprosy, endemic area, ANCDR, active surveillance.

INTRODUCTION

Leprosy is a disease of antiquity and finds mention in the ancient texts of India and it continues to share a special relationship with the Indian subcontinent even now. About 58% of the new cases detected globally come from India. ^[1] NLEP data shows near constant Prevalence Rates (PR) and Annual New Case Detection Rates (ANCDR) from 2005-2006 onwards. As per the NLEP data the ANCDR in India has marginally declined from 10.78 in 2012-2013 to 9.98 in 2013 -2014. ^[2]

Despite national elimination in December 2005, there is also a wide variation in the new case detection rate across the country and leprosy remains endemic in many districts. Also there is a distressing trend with the increase in new

cases with Grade II deformities which reflects the delay in the new case detection.

^[3] A Special house to house survey along with Information, Education and Communication (IEC) and capacity building of the workers and volunteers was the main strategy of NLEP and it was carried out in the high endemic blocks of low endemic districts in India in the year 2013-2014. ^[2]

As a part of this programme a survey was also conducted in Alanganallur Block of Madurai District, Tamil Nadu, which is identified to have high Annual New Case Detection Rate than the State and National averages in the year 2012-2013. The survey was conducted for a period of one year from April 2013 to March 2014 to assess the incidence and case detection trends and compare it with the previous year data. It

was also compared with the epidemiological trend in the subsequent years.

MATERIALS AND METHODS

Study period

One year from 1-04-2013 to 31-03-2014

Study Population

The study population included the entire population of Alanganallur Block, Madurai district of Tamil Nadu. Permission from the state Leprosy office and clearance from ethical committee of the institution (Madurai Medical College) was obtained.

Methodology

The services of Accredited Social Health Activists (ASHA) were obtained for the survey. ASHA were trained to conduct door to door survey in their respective villages to identify suspect cases of leprosy, patients with leprosy related disabilities and complications as well as to find old cases using a pre formed questionnaire. Total numbers of ASHA involved in this study were 25 in number. Their work was supervised by Health Inspectors, non-medical supervisors and the principal investigator. The suspected cases were examined by the investigator to confirm the diagnosis by clinical features, slit skin smears for acid fast bacilli or biopsy as per the requirement.

Training of ASHA

A 2-day initial comprehensive training was given with case demonstration and audio-visual aids regarding clinical case descriptions which included all aspects of leprosy, disability and differentiating features from common mimics of leprosy.

Inclusion criteria

1. New case of leprosy according to WHO case definitions. [4]

It is defined as a person having one or more of the following, and who has yet to complete a full course of treatment

- a) Hypo-pigmented or reddish skin lesion(s) with definite loss of sensation
- b) Damage to the peripheral nerves, as demonstrated by loss of sensation and mobility to hand, feet or face

- c) Positive skin smears.

Exclusion Criteria

1. Cured persons with residual disabilities.
2. Old cases with history of treatment either partially / fully completed or defaulted
3. All non-leprosy cases.

RESULTS

Alanganallur is a block in Madurai district of South Tamil Nadu with a total population of 108463 as per the census in 2014. The population covered by the ASHA was 82% (77,585) of the total population.

Of the total population surveyed, 894 suspected cases of leprosy were identified by the ASHA. Out of these, 12 were new cases of Leprosy, 6 were old cases on treatment, 65 were cases released from treatment and 720 were non-Leprosy cases. [Table 1]

Table 1: Survey result

Variables	Number
Total population enumerated	108463
Total surveyed	77584 (71% of the total population)
Case Total suspected	894
Suspects screened	803 (90% of suspected)
New cases	12
Old Case on Rx	6
RFT Case	65

Spectrum of leprosy cases detected

Out of 12 cases 7 were paucibacillary and 5 were multibacillary. The most common type of leprosy was found to be Borderline tuberculoid (7/12). Of these patients, 4 had nerve involvement and 2 had deformities of Grade II. The most common nerve involved was the ulnar nerve followed by the lateral popliteal nerve and one male had type 1 reaction [Table 2].

Table 2: Spectrum wise distribution of newly detected cases

Type of Leprosy	Male	Female
TT	1	1
BT	7	2
BB	0	0
BL	0	1
LL	0	0

Sex wise distribution

The male cases detected were more comprising 58% (7/12). In spite of door to door survey the number of female patients

was found to be lower (3/12). The number of children (<15yrs) with leprosy were two [Table 3]

Table 3: Distribution in relation to sex

Sex	Paucibacillary		Multibacillary	
	No.	%	No.	%
Male	4	57	3	60
Female	1	14	2	40
Male child	1	14	0	0
Female child	1	14	0	0

Age at detection

The age of Multibacillary patients were older at the time of detection compared to the paucibacillary patients. [Table 4]

Table 4: Age wise distribution with respect to the spectrum of newly detected cases

Age	Paucibacillary		Multibacillary	
	No.	%	No.	%
< 20 Years	2	29	0	0
20-39 Years	3	43	0	0
40-59 Years	2	29	5	100
60 Years and above	0	0	0	0

Table 5: Duration and site of skin lesion

S.NO	Patch	Site	Duration
1	Hypopigmented	Knee	4 Months
2	Hypopigmented	Forearm	2 Months
3	Hypopigmented	Trunk	1-2 Years
4	Hypopigmented	Face, Arm, Leg	4 Years
5	Hypopigmented	Elbow	6 Months
6	Hypopigmented	Back, Trunk	3-4 years
7	Hypopigmented	Leg	3 Months
8	Hypopigmented	Trunk	2-3 Years
9	Hypopigmented	Arm	2 Months
10	Erythematous	Thigh	1 Year
11	Hypopigmented	Back	2 Years
12	Hypopigmented	Face	1 Year

Epidemiological variables

Apart from the 12 newly detected leprosy cases in the survey, there were 3 voluntarily reported cases making the total new cases registered in Alanganallur block as 15 for the year 2013-2014. The ANCDR for the year 2013 -2014 at Alanganallur block was 13.8 with prevalence rate being 0.92.

The proportion of MB cases was 75% and the PB cases were 25%. The childhood cases comprised 8% of the total [Table 6].

Table 6: Comparison of Leprosy status in Alanganallur Block against Madurai in the year before and after the study period

Place	NEWCASES Alanganallur ALANGANALLUR BLOCK				NEW CASES Madurai DISTRICT			
	2012-2013	2013-2014	2014-2015	2015-2016	2012-2013	2013-2014	2014-2015	2015-2016
Voluntary	-	3	-	-	-	-	-	-
Survey	-	12	-	-	-	-	-	-
Total	12	15	6	7	156	190	198	199
ANCDR	11	13.8	5.45	6.36	4.98	5.9	6.14	6.18
PR	1	0.92	0.45	0.27	0.38	0.38	0.40	0.42
Proportion of MB Cases	75%	40%	67%	42.86%	50.64%	48.42%	46.9%	39.7%
Proportion of PB Cases	25	60	33	57.14	49.36	51.58	53.1	60.3
Proportion of children	8.3%	20%	0%	0%	16.08%	12.1%	16.6%	19.6%

DISCUSSION

Leprosy has been a major health problem in India since time immemorial. In India the National Leprosy Control Programme was started in 1955 to address this problem. It was followed by the National Leprosy Eradication Programme in 1983. A world Bank supported project was initiated in 1993 which, in its 2nd Phase, directed that decentralisation of NLEP to the States/ Union Territories be done along with the integration into general health care system with a view to achieve elimination. [5]

Though this elimination of leprosy at a national level occurred in December 2005,

endemicity persists in many pockets, probably because of the chronic and relatively asymptomatic nature of the disease. Further, the withdrawal of targeted and dedicated screening has led to these undetected yet potentially infective persons who are not identified until late. [6] This has resulted in a recent trend of detection of more number of patients with deformities as reflected in NLEP data which shows an increase of Grade II deformities from 1.87% in 2005-2006 to 4.14% in 2013-2014. [3] It is also reflected in studies comparing pre and post integration period. [7]

This study was done keeping in mind these changing trends of case

presentations of voluntarily reported cases and to see the differences in case of active screening in an endemic region. A similar study was done in Maharashtra by Shetty et al resulted in detection of a high number of new cases following door to door survey. [8] Our study conducted at Alanganallur block, Madurai district of Tamil Nadu was also effective in terms of screening a significant percent of the total population (71%) and detection of new cases. In spite of the short training period, the initial screening being done by ASHA showed that they were able to effectively segregate a group of population which included both new as well as old treated cases of leprosy.

The age distribution of the patients show that paucibacillary cases have a lower age at presentation (20-39 years) when compared to 40-59 years in the multibacillary group. This corresponds with the national data and the previous studies. [7] The number of paucibacillary patients in our study was higher. The possibility of the cases being missed due to the subtle clinical features of MB type may have contributed to this.

Despite door to door screening the number of female patients was low. This also is in accordance with other reports. [8] Since the principle investigator could screen only 90% of the total suspects, there is always the possibility of actual cases being missed out from the remaining 10% of the suspects. This may reflect in addition the lesser health seeking behaviour of female patients to health care services. The number of childhood leprosy cases constituted 20% of the total new cases. This indicates that yet to be detected multibacillary foci are present in the community. The presence of nerve involvement as well as grade II deformities in new patients also reflects national trends. [9]

Our study has the limitation of using ASHA in the initial screening procedure to find out suspect cases. This may have resulted in a lesser case detection especially of multibacillary patients with diffuse infiltrated skin lesions.

The ANCDR of our study is nearly three times that of Tamil Nadu as a whole which is 5.8 per 1,00,000 (year 2013-2014). This could be explained by fact that Alanganallur is comparatively a high endemic pocket with 1% prevalence rate in the year 2012-2013 which was more than the PR of state and Madurai district. [Table 6]

The observation of our survey was compared with the district leprosy unit data of Alanganallur block for the previous and the subsequent years of the survey, which is based on the voluntary reported cases. This shows a slight increase in ANCDR in our survey.

But actually in our survey, nearly 60% of the Cases [Table 5] have one or more than one year duration. An active surveillance would have helped in earlier detection of these cases. The deformity detected in one case could have been prevented. The ANCDR of the previous year would have also been definitely increased. This highlights the importance of measures to improve the voluntary reporting of leprosy cases.

The ANCDR of Alanganallur Block from April 2013 to March 2014 was 13.8 per 100000 populations which include the cases detected in our survey and the three voluntarily reported cases. The survey cases constitute 75% of ANCDR of Alanganallur Block (12 out of 15). This clearly reveals the need for active surveillance in high endemic areas.

There is a marked decrease in ANCDR in the following years in the Alanganallur block [Table 6]. Probably another survey may throw light on whether there is actual decline in the cases or it is because of the lack of voluntary reporting. Contrary to this, ANCDR of Madurai district as a whole shows a slight but steady increase from the year 2012 to 2015 which once again reflects effect of the survey of child and MB contact being done for the past two years and the effective IEC activities carried out in Madurai district.

The study shows that intensification of IEC activities as well as involvement of grass root workers after adequate training may compensate for the withdrawal of active case detection which has occurred after the decentralisation of leprosy programmes. [10] This concept has been taken up by the NLEP recently by conducting Leprosy Case Detection Campaign which is proposed to be implemented in high endemic districts of the country similar to the Pulse polio Campaign. [2]

CONCLUSION

There is a large backlog in the detection of leprosy cases in the endemic areas. There are also problems faced by patients in accessing the state health care facility. This warrants the need for active surveillance in the community to attain the actual elimination.

However it may be difficult for the government to implement active surveillance as a part of National Leprosy Eradication Programme due to financial concern. Alternate strategies must be considered to bring out the undetected cases in the community. Information, Education and Communication activities should be strengthened to increase the level of awareness in the community and motivate the people to reach the health system.

It is also essential to ensure capacity building among primary health care staffs and enforce the accountability by strict supervision.

This study can serve as a testimony to the fact that if such steps are undertaken leprosy elimination in endemic regions as well as the distant goal of leprosy

eradication in India may be nearer than ever before.

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