SHORT REPORT

Detection of previously undetected leprosy cases in Firozabad District (U.P.), India during 2006–2009: A short communication

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Summary
Objectives: This study was initiated to assess the extent of undetected (new) leprosy cases in Firozabad District of U.P.
Methods: A sample survey of more than 980,000 people was undertaken in nine blocks of the district during October 2006 to March 2009, using a household questionnaire and a cross section survey.
Results: A total of 774 previously undetected cases were detected (7.57 NCDR/10,000 population) over the 2.5 year period of the survey. The characteristics of previously undetected cases are described by age, sex, classification, urban/rural residence and disability.
Conclusion: There are many undetected leprosy patients in the community. Active surveys can help in detecting previously undetected cases. The current programme is based on information, education and communication (IEC) to encourage case reporting. IEC activities should be designed in such a way that people can suspect leprosy and are self-motivated to know about free treatment, its availability, and effectiveness.

Introduction

Leprosy continues to be a public health problem in India, which contributes about 60% to the world leprosy burden. Multidrug treatment (MDT) has cured a large number of leprosy cases since its implementation, leading India to declare leprosy as eliminated on 1st January 2006; however many new cases are still being reported. This has been evidenced from Agra district in Uttar Pradesh, Mumbai and Raigad district in Maharashtra and recent surveys in Haryana and another four districts in Uttar Pradesh during 2009–10.

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The present study was undertaken to investigate the leprosy scenario in Firozabad district of Uttar Pradesh (neighbouring Agra district) which was reporting a very low leprosy prevalence of 0.17/10,000 population in 2005–06. Firozabad district had a population of 2.49 m in 2011.

Methods

A total of more than 980,000 population was covered in this survey conducted during 2006–2009. A house-to-house cross-sectional survey was conducted using a questionnaire and physical examination with the help of experienced field staff including trained paramedical workers (PMWs). Suspected leprosy cases were examined by a medical doctor and sometimes by the district leprosy officer (DLO) and Zonal officer. All the confirmed cases were classified as per WHO classification and treated with standard WHO-MDT for paucibacillary (PB) and multibacillary (MB) leprosy.

A new case of leprosy was defined as one previously undetected. Cases giving a history of treatment, currently on treatment, or defaulters were classified as previously detected. Grade 1 disability was defined as definite anesthesia in palm or sole or both. Grade 1 in the eyes was not assessed for reasons of the risks involved in a field setting. Grade 2 disabilities were visible deformities due to leprosy. Slit-skin smears were taken from patients who consented. The new case detection rate (NCDR) per 10,000 populations has been computed.

Ethical clearance and patient consent: The study was approved by the Institute’s scientific ethical committee. All patients were verbally informed about the disease, treatment and its implication in terms of benefits of treatment and possible side effects and their remedy.

Results

In this sample survey, a total of 983,075 people were examined from all nine blocks of the Firozabad district and 744 new leprosy cases were detected, giving a NCDR of 7.57 per 10,000 population examined. The NCDR increased with age from 1.30 for those under 15 years to 29.46 for those over 44 years ($\chi^2 = 1052, P < 0.00001$) and was higher in females than males (6.81 vs. 8.41, $\chi^2 = 7.97, P = 0.005$). The NCDR per 10,000 population in rural areas of the district was 6.56, significantly lower than the figure of 9.98 in urban areas ($\chi^2 = 32.97, P < 0.0001$). A total of 57.3% (438/764) were cases of single lesion paucibacillary (PB) leprosy, 25.7% (196) were PB (2–5) lesions and 15.9% (118/744) were multibacillary (MB) leprosy. During the survey, 97 slit skin smears were taken and 12 (12.4%) were found positive.

Nerve involvement was seen in 32.4% of the new cases. The total disability rate in new leprosy cases was found to be 7.3%; Grade 1 (3.9%) and Grade 2 (3.4%). The total disability rate among PB leprosy was 3.4%; Grade 1 (1.3%) and Grade 2 (2.1%), in comparison to 28% in MB leprosy; Grade 1 (17.8%) and Grade 2 (10.2%). The Grade 1 disability was more in MB leprosy than in PB leprosy (17.8% vs. 1.3%, $\chi^2 = 7.4, P < 0.01$), as was Grade 2 disability (10.2% vs. 2.1%, $\chi^2 = 31.5, P < 0.0001$).

Discussion

The number of new leprosy cases reported is declining, but active surveys have been showing more leprosy cases. This had been observed in Agra district in north India, Mumbai and
Raigad districts of Maharashtra in west India,\textsuperscript{5,6} four districts each of Haryana and of Uttar Pradesh.\textsuperscript{7} Studies from Bangladesh,\textsuperscript{8} Brazil and Indonesia\textsuperscript{9} and Madagascar\textsuperscript{10} also show higher cases detected in active surveys than are being reported routinely.

The leprosy burden in the district of Firozabad as observed in this study, conducted on a fairly large population size of almost 1 million people, revealed that the NCDR was 7.57 per 10,000 population in comparison to 0.345 to 0.587 per 10,000 during 2006–09 (average = 0.432) as per the reported district figures. This suggests that the NCDR was many times higher than that being reported through the health system.

Of the new cases, 8.6\% were children (\(<\ 15\) years) and 15.9\% had MB leprosy suggesting that transmission of the disease is continuing in the district. This may be the reason to observe that disability rate is 7.3\% in new cases with 3.4\% visible deformity (Grade 2) in comparison to 1.52\% in U.P. and 2.53\% in India as reported from Government sources.\textsuperscript{1}

It is recognised that passive reporting of vital events is underreported in India due to factors such as low literacy, lack of knowledge and awareness to report. The poor functional service network for reporting such events is a further factor. The disease at an early stage does not bother people unless it becomes a concern by causing disability and this contributes to under-reporting. There is a need to develop programmes with better health informatics along with more awareness of the services available to treat the disease. Effective communication strategies are needed on the early signs of disease and the availability of treatment in closer proximity, along with good general health services, to reduce the burden of undetected and untreated leprosy in the community and contribute to the goal of leprosy elimination and eradication.

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Competing Interests
None

Authors Contribution
AK was responsible for planning, conducting, analysis and writing the manuscript, AG & JKC for clinical assessment, monitoring and BKG for planning, clinical assessment, monitoring and writing. All authors read and approved the final manuscript.

References