Family motivation card: An innovative tool for increasing case detection in a resource poor setting

TANMAY PADHI* & SWETALINA PRADHAN*
*Veer Surendra Sai Medical College, Burla, Sambalpur, Odisha, India

Accepted for publication 3 October 2014

Summary

Introduction: Leprosy is a chronic infectious disease, causing various physical disabilities and deformities. Even today, stigma leads to late detection of new cases. Household contacts are considered a primary focus for the spread of infection.

Aim and objective: To find new cases among household contacts of leprosy patients by providing a family motivation card (FMC) to each leprosy patient, thereby enabling early diagnosis and treatment leading to a decrease in disease and disability burden in the community.

Materials and methods: 100 patients diagnosed with leprosy (both new and old cases) were enrolled in the study. All patients were provided with a family motivation card. The purpose of giving the card was discussed in detail with each patient. New family contacts brought by old patients were examined thoroughly for the presence of leprosy. Digital color photographs were taken of all family contacts. Data analysis was done.

Results: 23 new cases of leprosy (15 (65%) MB and eight (35%) PB cases) were detected among family members of primary cases. Most cases belonged to the under 15 years (43.47%) and over 60 years (34.78%) age groups.

Key lessons

Family Motivation Card:
- Significant numbers of new cases can be found amongst household contacts
- There are many ways in which household contacts can be approached
- A simple, informative leaflet was helpful in motivating family members in a poor community in Odisha State, India

Correspondence to: Swetalina Pradhan, Veer Surendra Sai Medical College, Burla, Sambalpur, Odisha, India (e-mail: dr.swetalinapradhan@gmail.com)
Conclusion: Adoption of a simple, cheap yet effective strategy such as the FMC could act as a bridge between intensive case-finding approaches, such as the Modified Leprosy Elimination Campaign (MLEC) and voluntary reporting.

Introduction

Leprosy is a chronic infectious disease caused by *Mycobacterium leprae*. The organism multiplies very slowly and the incubation period is variable but is usually several years. Symptoms, including lesions of the skin, peripheral nerves, limbs, and eyes, can cause severe disability and take up to 20 years or more to develop after the onset of infection. Leprosy patients also suffer from reactions leading to serious complications. The mode of transmission of *M. leprae* remains uncertain but is widely believed to occur from person to person via respiratory droplets. Close and prolonged contact with untreated patients with multibacillary disease leads to development of disease. Genetic and socioeconomic factors play a role in the development of leprosy. Family members share genetic similarities, as well as the opportunity for prolonged close contact with each other. Hence household contacts are considered a primary focus for the spread of infection.

Leprosy control programmes promoted intensive door to door and media campaigns (MLECs) during 1990s to decrease the burden of the disease in the community, but it is needless to say that intensive door to door campaigns require a huge amount of funding, manpower, social and political commitment. By 2005, the global prevalence of the disease had fallen to about 300,000 and leprosy was declared eliminated. However, leprosy has continued to remain endemic in certain developing countries like India which clearly points towards ongoing transmission of the disease. A paucity of information regarding the geographical area and extent of transmission has been a major obstacle in decreasing the endemicity of leprosy. Also, success in reducing global prevalence and incidence has led to complacency among health officials of many countries. Only a few countries now have a surveillance response system that could provide the epidemiological data needed to map high-risk areas for leprosy, to monitor the changing epidemiological pattern of the disease, and to implement the required interventions. In the absence of such data, alternative approaches such as rigorous tracing of contacts of patients with leprosy is a prerequisite to stop leprosy transmission.

In our centre, which covers the entire population of Western Odisha, a province in India where leprosy dominated the public health scenario few years back, a good number of new leprosy cases continue to report for consultation even after the official statement of elimination. The majority of patients are from tribal localities with suboptimal levels of transportation and communication facilities. Many of the new cases belong to the multibacillary group suggesting the presence of a hidden focus of infection in the community.

Keeping all these things in mind, we thought of motivating leprosy patients in an innovative way by providing them with a family motivation card so that they could bring their family members at an early stage to our centre for diagnosis and treatment of leprosy.

Materials and methods

We conducted a prospective study in a tertiary care centre from May 2013 to January 2014. All patients, new or old, diagnosed with leprosy were included in the study. Those patients
unwilling to come for follow-up and to undergo study were excluded from study. The patients were provided with a family motivation card (Figure 1).

The purpose of providing the card was discussed in detail with each patient. The signs and symptoms of the disease were explained, with possible complications and the feasibility of preventing them through early diagnosis and treatment. Specific emphasis was given on bringing females and children of the family. New family contacts brought by old patients were properly examined clinically for the presence of leprosy including history-taking, clinical examination, slit skin smear, nerve function assessment and histopathology wherever necessary. Digital colour photographs were taken of all family contacts.

Results

One hundred patients were enrolled in the study with a mean age of 41 years. From the contacts of all index cases, 23 new cases were found with mean age of 38 years. In both groups males outnumbered females. Educational and socioeconomic status was comparable in both the groups. The majority of patients in both the groups were from rural areas.
Among the index cases 48% were of the MB category and 52% belonged to the PB category, whereas 65% new cases were found to be in the MB category and 35% were in PB category (Figure 2).

Borderline tuberculoid leprosy (BT) was the most common leprosy type amongst the index cases (39%), while lepromatous leprosy was the most common type in the contacts (48%) (Table 1).

**Discussion**

Leprosy remains a public health problem in the post elimination era. Infectious cases are found in different endemic pockets in India leading to ongoing transmission in the

**Table 1.** Clinical profile of primary and new cases

<table>
<thead>
<tr>
<th>Leprosy spectrum</th>
<th>Primary cases</th>
<th>Percentage</th>
<th>New cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT</td>
<td>13</td>
<td>13%</td>
<td>TT</td>
<td>2</td>
</tr>
<tr>
<td>BT</td>
<td>39</td>
<td>39%</td>
<td>BT</td>
<td>6</td>
</tr>
<tr>
<td>BB</td>
<td>17</td>
<td>17%</td>
<td>BB</td>
<td>1</td>
</tr>
<tr>
<td>BL</td>
<td>21</td>
<td>21%</td>
<td>BL</td>
<td>3</td>
</tr>
<tr>
<td>LL</td>
<td>10</td>
<td>10%</td>
<td>LL</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
<td>Total</td>
<td>23</td>
</tr>
</tbody>
</table>
community, which in turn is contributing to the increasing number of new cases. In our study the family motivation card proved to be a useful tool for new case detection among family contacts. In our study, of all new cases, ten were below 15 years of age suggesting that they were exposed to M. leprae at an early age, which is comparable to the study done in Brazil by Maria et al.\textsuperscript{12} in which 26-7\% patients were less than 20 years old. The study proves that passive case detection may result in delayed diagnosis. The mean age of the index cases was higher than the contacts, similar to the findings of Moet et al.\textsuperscript{13} where age was considered as an independent risk factor for developing the disease.

The findings of our study were comparable with those of other studies where the prevalence of leprosy was evaluated among both family and social contacts.\textsuperscript{14,15} The present study showed similar results to those of Pönnighaus et al.\textsuperscript{16} where fewer years in school, poor housing and low income were associated with a high risk of leprosy. In another study by Swain et al.\textsuperscript{17} in 2004, 400 families were screened and 72 new cases were found with the prevalence being 18\%; however in our study, providing the family motivation card to visiting patients increased the incidence to 23\% without any significant additional cost and manpower.

The present study showed that the new cases were predominantly illiterate, belonged to childhood and old age groups and 65\% cases were of the MB category. This proves that being from a rural locality or not having formal education is not a hindrance in seeking health care for self or for family members if the patient is made to understand that leprosy is curable and the health of his family members is his responsibility only. People from weaker sections of society - children, females and elderly members - are often not brought to the hospital for various reasons. The FMC campaign, though done for a short period, proved to be useful in targeting these groups of people. Higher numbers of MB cases, potentially infectious from a public health point of view, could be persuaded to break the barrier and seek health care.

The adoption of a simple, cheap yet effective strategy such as FMC could act as a bridge between intensive approaches such as MLEC and voluntary reporting.

References

1 Sharma VK. The epidemiologic significance of leprosy within the household. \textit{Int J Lepr Other Mycobact Dis}, 1968; \textbf{36}: 1–16.
An innovative tool for increasing case detection in a resource poor setting


14 Hoeven TA, Fischer EA, Pahan D, Richardus JH. Social distance and spatial distance are not the same, observations on the use of GIS in leprosy epidemiology. Epidemiol Infect, 2008; 136: 1624–1627.

