SHORT REPORT

Case finding survey for leprosy in Iran: Bandar Abbas and Minab

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Leprosy still affects large populations in developing countries particularly in Africa, Asia and Latin America. Leprosy is endemic in Iran. Age, gender, close contact, low socioeconomic status, geographical area and BCG vaccination are factors affecting transmission.

The number of patients with leprosy has fallen from an estimated 5·4 million patients in 1985 to 0·6 million patients in 2002. Mathematical modelling of the transmission of leprosy shows that the elimination strategy reduced transmission slowly, with a predicted annual decline in incidence ranging from 2% to 12%. Early case finding was the key factor to attain this decline. Future projections of the global leprosy burden indicated that 5 million new cases would arise between 2000 and 2020, and that in 2020 there would be 1 million people with WHO grade 2 disabilities. As early case detection reduces deformity rates in newly detected leprosy patients, investigating screening programmes is useful. The aim of this study was to evaluate a method of investigating early case finding in leprosy patients using medical records.

In a descriptive cross-sectional study, medical records of 145 leprosy patients referred to Bandar Abbas leprosy centre between 1972 and 2004 were reviewed. Family members and neighbours of known patients were the screening population. Family members were
considered as those who had a close relative and visited the patient (close contact), and had a high contact rate with the patient during the disease period. Neighbours were defined as those who were living adjacent or near to the patient’s place of residence, and had a close relation with the patient during the course of the disease.

To evaluate this selected population two different methods were used: direct examination and education. In order to evaluate the cases, four teams were organised. Each team consisted of two expert personnel (nurses) of leprosy therapeutic centres located in the same city. Then investigators were trained in detecting clinical manifestations (signs and symptoms) of leprosy and complications in four sessions.

Family members were examined and the neighbours were educated about manifestations of leprosy. Some of the neighbours then came for examination. All people suspected of having leprosy were referred to a dermatology centre for more assessment. Further evaluations and possibly biopsy of suspected lesions took place. All biopsy specimens were sent to the pathology laboratory of Shahid Mohamadi Hospital in Bandar Abbas. Collected data were analysed with EP16.

The study was conducted on an initial population of 145 cases (60 females and 85 males) referred to our centre with a diagnosis of leprosy. In follow-up visits in 2004, out of 145 patients, 43 (29·7%) were dead and 11 (7·6%) had migrated to another place; finally 91 (62·7%) were available from which 41 were female and 50 were male. Some 461 family members were examined; 1400 neighbours received health education and 48 came for examination. Five hundred and nine people were examined, 20 of whom were suspected of having leprosy and were referred to the dermatology centre. In the centre 15 people had biopsies taken from lesions, and three people were confirmed as having leprosy. One of them was from a family with a case detection rate of 21·7 in 10 000, and two of them were neighbours of cases with a case detection rate of 14·3 in 10 000. All the detected cases lived in endemic areas. One of them was the grandson of a confirmed case of leprosy, but two of them had no close contact with leprosy patients. No disability was present in these newly detected cases. Figure 1 shows a decision tree of the steps and processes of investigation.

In this study, a case detection rate of 21·7 in 10 000 in family members and 14·3 in 10 000 in neighbours of previous patients was found. The WHO reports give rates between 6·78 and 0·1 in different WHO regions in 2008, so we have achieved higher case detection rates in our selected population. This is consistent with previous studies evaluating the efficacy of case detection in close contacts of confirmed cases of leprosy.

Considering undiagnosed cases as the most important source of infection may be controversial, because a history of close contact is not present in many newly diagnosed cases. Screening the whole population is not a cost-effective programme, so screening the close contacts of patients with diagnosis of leprosy is one option. However just screening them is not enough, and we should include other ‘at risk’ populations in such a programme.

In the population of neighbours, we found two cases after directly examining 461 people after educating about 1400. We could have achieved a reasonable number of case detections when compared with this figure in family members of one case after directly examining 509 people, and this would be even more reasonable when logically we suppose that this number should be higher in family members because of more contact with patients than neighbours. However we could comment on this subject with more precision if we also examined neighbours.

In the education programme we found that the knowledge of educated people about leprosy – the route of transmission, rate of transmission and state of eradication of this
disease – was poor. This has been noted in previous studies. We could investigate people’s knowledge through a questionnaire delivered to them before teaching them.

We conclude that as screening leprosy as well as selecting specific populations for screening seems to be logical, and investigating the whole population is not cost-effective,

Figure 1. Decision tree showing the steps and process of the investigation that took place.
we suggest that family members and neighbours are populations that should be screened. We think that educating selected populations can be a first step in this programme. Educating a higher number of people could be possible if necessary, but directly examining a high number of people is often not possible.

In future studies we can include a higher number of people, and consider other risk factors. We can investigate the degree of knowledge of people by using questionnaires, and compare different methods of screening such as education and directly examining people as the first step in the screening programme, to finally come to an exact protocol for leprosy cases especially in endemic areas.

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References