

## **The fulfilment of health care needs of leprosy patients from Kaski District, Nepal**

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*Summary* Hospital records of 142 leprosy patients from Kaski district in Western Nepal were reviewed to assess their use of leprosy related health services and the fulfilment of these needs. Use of services was reviewed from diagnosis until release from treatment. Voluntary muscle and sensory testing were on average done 15.2 times per patient. Of MB patients, 65.5% had longer intervals between testing than recommended. A course of prednisolone was indicated in 40% of cases, but 10% of needed courses were not given. Twenty-eight percent needed protective footwear. Of the cohort, 10% had complicated ulcers and 28% had at least one admission. Paralytic impairments that could be corrected were present in 10% of the cohort.

### **Introduction and methods**

Kaski district is located in the hilly part of the Western Nepal. The population in 2001 was 380,527.<sup>1</sup> Two urban municipalities are located in Kaski, one of them Pokhara. In the Western Region of Nepal, the prevalence of leprosy was 4.47/10,000 in 1997. In Kaski, leprosy treatment is available at health posts, but the majority of patients came to the outpatient department of Green Pastures Hospital in Pokhara for diagnosis and treatment. Green Pastures Hospital is a tertiary referral hospital.

We conducted a retrospective record review of new leprosy patients from Kaski district registered between mid-July 1991 and mid-July 1995 who had been in Green Pastures Hospital as out- or inpatients.

During the study period, 156 new leprosy patients were registered in Kaski district. Of these, 142 had hospital records in Green Pastures Hospital. Three of them were found not to have leprosy, leaving hospital records of 139 patients for review.

The follow-up time was until release from treatment (RFT) or until 3 years from registration, whichever came first.

Voluntary muscle testing (VMT) was used to assess muscles innervated by the facial, radial, ulnar, median and common peroneal nerves. Sensory testing was performed with Semmes–Weinstein monofilaments applied to the palm of hands and soles of the feet.

The need for prednisolone therapy is defined as a patient having severe reaction and age under 60 years and no contraindications. For assessing severity the criteria of the National

Manual for Leprosy Control in Nepal were used.<sup>2</sup> One of the main criteria is impairment detected by VMT/ST.

The need for protective footwear was defined as at least one pair in a year for those who had loss of protective sensation in at least one point in sole of the foot, as measured by Semmes–Weinstein monofilaments. A foot ulcer was defined as complicated if bones, tendons or joints were involved.

## Results

VMT/ST was performed 1780 times for the 136 patients, with an average of 15.2 per patient for MB and 6.6 for PB patients (range 1–45).

VMT/ST was performed 3-monthly for 88% of PB patients, and for 14% of MB patients. Sixty-six percent of MB patients had a gap of more than 6 months between VMT/ST tests. Of those who had a gap over 6 months, 24% had grade 2 disabilities at the time of diagnosis, and 7% had grade 1 disabilities.

In all, 128 records had sufficient information to assess the need for prednisolone, and 48% of MB cases and 15% of PB needed at least one course of prednisolone. More than one course was needed by 16%.

Of those with WHO impairment grade 2, 48% (12/25) fulfilled the criteria for prednisolone therapy. Amongst those with grade 1 impairments, 72% (13/18) needed at least one prednisolone course. Overall, 58% (25/43) with any grade impairment needed at least one prednisolone course.

Of those patients who should have had prednisolone therapy, five patients did not receive any therapy, and three did not receive as many courses as they should have had. Of the indicated prednisolone courses, 10% were not given.

Twenty-eight percent needed protective footwear, 13% once, and 15% twice. Of 37 patients eligible for protective footwear, 11 (30%) did not receive protective footwear. Out of 20 needing footwear more than once, 3 (15%) did not receive it as often as indicated. Six patients needed special footwear and five of the six patients received this.

In this cohort, there were 23 complicated ulcers in 13 patients (10%); five had complicated ulcers twice, one had complicated ulcers and one had four. There were 22 admissions for complicated ulcers. Of patients with complicated ulcers, 10/13 were over 45 years old and six were over 60 years old. Twenty-two surgical operations were performed for complicated ulcers.

Lagophthalmos was present in 4% of patients. Only two had indications for lid surgery, and were operated on. Three patients (all over 50 years) were found to have cataract, but the information in many records was inadequate to exclude cataract. None had a cataract operation during the follow-up time. Other eye care is required for conditions like exposure keratitis, iridocyclitis, corneal ulcer or trichiasis. Among 124 patients, six needed bilateral eye care and five needed eye care for one eye. Of the MB patients, 9% needed eye care.

In this cohort, there were four patients with drop foot, one bilateral. During the follow-up time, two drop foot corrections were performed. There were 12 patients with claw hand due to ulnar nerve paralysis, five of them bilateral. Only two tendon transfer operations were done. There were five patients with median nerve paralysis, two of whom had tendon transfers done.

Of 137 patients, 28% had at least one admission, but some patients had more than one admission. There were 79 inpatient episodes in the cohort, the average length of stay being 54.3 days. Of the 79 inpatient episodes, 56 (71%) were patients with either grade 1 or 2 impairments at the time of diagnosis.

Of those who had WHO impairment grade 2 impairments, 64% were admitted at least once. Of those with grade 1 and grade 0 impairments, 28% and 16%, respectively, were admitted.

## **Discussion**

This research was based on patient record review, which is likely to result in underestimation of actual health care needs. The results show only a minimum of needs, and some needs might be greatly underestimated because relevant information is not routinely recorded. Some information is recorded only if impairments were recognized, but negative findings are not recorded.

To detect recent nerve function impairment and to have the best chance of recovery, VMT/ST should be done 3-monthly. During the study period, the policy was that nerve function impairment was treated with prednisolone only if it was less than 6 months duration. The proportion of MB patients having VMT/ST 3 monthly was only 14%, and 66% had gaps longer than 6 months. Therefore, the majority of multibacillary patients did not have VMT/ST performed sufficiently adequately to detect possible changes early enough to give good chances for recovery of nerve function. This needs to be improved to ensure timely treatment of recent NFI.

Of those 128 who were followed long enough to determine the need for prednisolone therapy, 40% needed at least one prednisolone course. Van Brakel and Khawas reported 39% of patients requiring prednisolone course among 396 patients registered in the same hospital.<sup>3</sup> This close agreement is expected, as the criteria for prednisolone were the same. Of those needing prednisolone therapy, 10% did not receive any courses of prednisolone. In the BANDS study, about one-third of the patients with indications for prednisolone did not receive it.<sup>4</sup> In 8% of cases, the given prednisolone course was not completed.

Protective footwear was indicated in 37 patients, but only 26 received footwear. Thirty percent of those having indications for protective footwear did not receive it. Some of the patients might have had their own footwear, or might have refused the footwear for some other reason.

Four of the 15 patients who had impairments that could have been surgically corrected had reconstructive surgery during the follow-up time. Some of the patients might have refused operation; some may have had impairments for which surgery does not give functional benefits. This information could not be extracted from the records.

There were 4293 inpatient days in this cohort during the follow-up time, which translates as more than 31 days per patient. Twenty-eight percent of patients had at least one admission. It is likely that this includes some overuse of inpatient care in this cohort. This was partly caused by the practice of admitting nearly every patient starting prednisolone at the beginning of the period under review. This practice changed during the study period.

The WHO impairment grade at the time of diagnosis predicts the use of inpatient care. Patients with either grade 1 or 2 impairments had 80% of the admissions in this cohort. It was

not possible to separate the reasons for admissions because a single admission could have simultaneously several reasons.

This study revealed some areas that need improvement. The recording of findings, especially negative findings, should be improved. The regular VMT/ST testing should be emphasized. The mechanism to recognize and record patients benefiting of protective footwear or reconstructive surgery needs improvement.

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