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Letters to the Editor

SENSORY TESTING OF THE HANDS IN LEPROSY

Editor,

In a recent paper Kets *et al*. examined methods for testing sensation in the hands (and feet) of healthy Nepalese volunteers.[1] They conclude that the use of a 200-mg monofilament is a sensitive and specific test for loss of sensation (LOS) in the hand, and therefore a reliable basis on which to diagnose and treat median and/or ulnar neuritis in leprosy patients. We would like to put forward an alternative view on the best way to test sensation in the hand in a routine control programme.

A previous study at the All Africa Leprosy and Rehabilitation Training Centre (ALERT), in Addis Ababa, compared 1-g and 10-g filaments for testing sensation in the hands, in both leprosy patients and healthy controls.[2] It was concluded that the 1-g filament might 'detect insidiously developing neuritis earlier than by using a ball-point pen or a 10-g filament.' In that study, 15 out of 47 patients (31·9%) would have been treated for neuritis if the 1-g filament had been used as the criterion for treatment; they were not treated, however, as they did not meet the criterion then, and still, in force in the ALERT programme, namely insensitivity to the 10-g filament. The authors noted that interobserver variation was present with both filaments but, not surprisingly, was greater with the 1-g filament. It is interesting that, at least until very recently, the team in Nepal already quoted has also used the 10-g filament as the criterion for diagnosing neuritis in the hand in their routine programme.[3,4]

Because a prospective trial of treatment based on two or more different criteria would be a major undertaking, we decided to review the 15 patients mentioned above to see if they had 'insidiously developing neuritis' or a mild and perhaps insignificant neuritis, not leading to loss of protective sensation. The first assessment of patients in the original study was done in 1990, with follow-up examinations later in 1990, in 1991 and a few in 1992.

Method

All 15 patients were looked for through a variety of tracing methods. Ten (67%) were found and examined in 1996 by the leprosy control supervisor for the area. The hands were tested at 10 points (4 in the ulnar area and 6 in the median area) using a range of monofilaments (50 mg, 200 mg, 1 g, 50 g and 300 g); it was noted whether the hands were dry or sweaty and whether there were wounds, cracks or bone loss; any treatment with steroids after the first study period, was noted.

In addition, the clinic cards of the other 5 patients were reviewed and the most recent findings noted. Two of these had been seen recently, but three were lost at the end of the previous study in 1991–2 and are therefore not included in the analysis. The three excluded patients all had normal sensation to 10 g when they were last seen.

Results

Eleven of the 12 cases under review completed multidrug therapy (MDT) and have not been treated with

steroids for neuritis affecting the hands since the first study took place (one patient had steroids in 1994 for LOS in the feet). All of them had had additional LOS in the hands as detected by the 1-g filament during the first study, but no additional LOS to 10 g.

All these hands are now in good condition. Six of the 12 patients have slight damage which was present before the start of treatment and before the previous study was carried out; they have no additional damage. Two of the 12 patients have slightly improved sensation compared with their status at diagnosis. Three patients were normal at the start and remain so now—in these cases 'normal' means sensitive to 10 g at all 10 points and no wounds, cracks or absorption. The twelfth case is described in more detail:

Case report: C.H. is a female patient with multibacillary leprosy, who was born in 1940. She started treatment in 1988. She had normal sensation in the hands at the start of treatment, but already had significant LOS in both feet. When she was enrolled in the filament study in April 1990, she had normal sensation to 10 g, but 1 point of LOS was noted to 1 g in the left ulnar area. When seen a month later, she still had normal sensation to 10 g, but marked LOS to 1 g in both the ulnar and median areas of the left hand (of two observers, one found LOS at 5 points and the other at all 10 points).

In that study, steriod treatment was only given if there was more than one additional point of LOS to the 10-g filament, so the patient did not receive steroids at this point. In December 1990, 7 months after LOS was noted with the 1-g filament, she was started on steroids for further LOS noted with the 10-g filament. In October 1991, she had a further course of steroids. In 1996, she had lost the tip of the left little finger and her hands are dry; there were no wounds or cracks; she could not feel the 1-g filament anywhere on either hand, but felt the 300-g filament everywhere; with both the 10-g and 50-g filaments she can feel at 4 points in the right median area only.

Discussion

Nylon monofilaments are among the most reliable and easily applied tests of sensation available for a field programme.[5,6] However, the best method of utilizing them in a routine situation remains under debate. The use of several different monofilaments to determine a threshold of sensitivity, as proposed and evaluated by van Brakel,[6] seems overly complex for routine use in a field programme.

This review has shown that 11 out of 12 patients (92%) have had a good long-term result, even though their suspected early neuritis, as detected by a 1-g filament, was not treated with steroids. One patient has not done well in terms of preserving sensation, although her hands have been well looked after, so that she has minimal disability. It is, of course, unknown how she might have responded to steroids started 7 months earlier.

It seems likely that, in view of the increased interobserver variation with the more sensitive 1-g filament, there is a significant loss of specificity with this test and that the one patient with subsequent damage may have been the only one with a significant early neuritis. In other words, false predictions of clinical neuritis with the 1-g filament may be very common.

In a field programme where much of the work of disability prevention is carried out by busy junior staff, in difficult surroundings, a simple and reliable test for neuritis is required. Because the steroid regimen is complex and not without side-effects, a test with a high degree of specificity is required.

Our conclusion from this simple review is that the attempt to detect and treat very early or mild neuritis, whilst reasonable in an ideal world, may be an unnecessary and counter-productive burden in leprosy control programmes, which are beginning to integrate with the general health services. In such programmes a 'basic minimum' of activities for general staff has still to be worked out.

We would suggest that the use of a filament near the sensory threshold for normal subjects, as suggested by Kets *et al.*,[1] will lead to a large number of patients (at least double the present load) being treated for neuritis, many of whom may not really need it. A less sensitive but highly specific test, using the 10-g filament, clearly indicates significant neuritis that requires aggressive treatment.

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