

ORIGINAL CONTRIBUTIONS

MONITORING THE RECOVERY OF TOUCH AND PAIN SENSATIONS IN LEPROSY WITH GRADING DEVICES

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Two devices, designed for grading the loss of sensations of touch and pain were employed for studying 8 leprosy patients having anaesthetic patches. Approximately 4-6 weeks after specific treatment, grading of the sensory loss was repeated. In 7 patients, a decrease of the grade indicated recovery of the sensations while in the eighth patient, the grades for both the sensations remained the same.

Key words : Leprosy, Sensations, Testing, Devices, Touch, Pain.

During the last 10 years or so, one of us (JSP) has been working on different designs for instruments to standardise the stimuli of touch, pain and temperature for eliciting and grading the loss of cutaneous sensations. One such set was demonstrated at the annual conference of the IADVL in 1982.¹ This set consists of three instruments, one each for the sensations of temperature, touch and pain. In the case of temperature sensation, a small metallic disc (probe) is slowly but continuously heated by means of an electric current and the temperature of this probe is concurrently displayed on a meter. The probe is repeatedly applied on the test site for 3 seconds at intervals of 5 seconds till the patient feels that the probe is hot. The minimum temperature felt as hot (MTH) at the test site is recorded. Comparison of the MTH at the lesion with the MTH at the contralateral normal skin determined simultaneously indicates the degree of loss of the temperature sensation.² In the case of pain and touch

sensations, each instrument is designed to provide a standardised stimulus of the respective sensation and if the patient feels less sensation at the lesion as compared to the normal skin, there is provision to increase the stimulus step-wise till the patient feels the sensation equal to that on the normal skin. The sensory loss at that skin area can thus be graded. We have been regularly using these instruments to grade the loss of cutaneous sensations in leprosy patients. Recently, these instruments have been further modified to make them smaller, more handy and easier to use. This report is meant to demonstrate that these instruments have made it possible to objectively record the recovery of the sensory loss in patients having leprosy.

Materials and Methods

The study was undertaken on leprosy patients having anaesthetic patches. In each case, the exact outline of the lesion was drawn on a 1-cm graph-paper and transferred to a paper sheet for permanent records. The area of the lesion was divided into 1 cm squares, and the sensory loss was graded in some of these squares by using the touch-sensation-testing-and-grading

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(TSTG) device and the pain-sensation-testing-and-grading (PSTG) device. The TSTG device (Fig. 1) has a thread of a specified thickness and

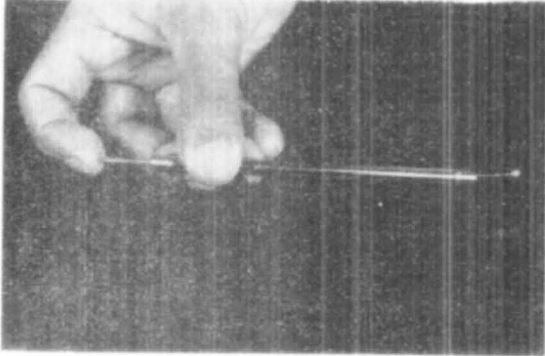


Fig. 1. The touch-sensation-testing-and-grading device.

length bearing a knob at one end; this thread can be pushed out or retracted inside a metallic housing by means of a spring-mounted piston. Using the maximum length of the thread, when the knob is pressed against the skin, it evokes a measured stimulus of touch. By step-wise reducing the length of the thread projecting out of the housing, the degree of the touch stimulus can be proportionately increased. In this manner, this device has provision to apply 4 different grades of touch stimuli. Similarly, the PSTG device (Fig.2) has a specially designed pin mounted against a spring which pricks the

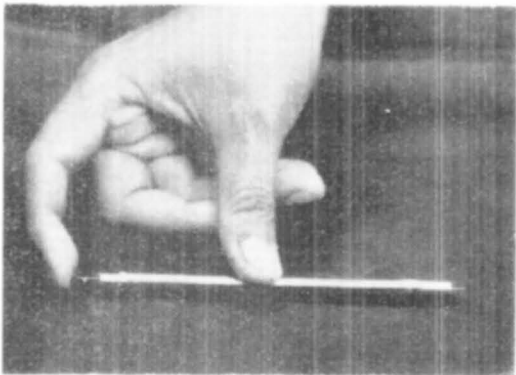


Fig. 2. The pain-sensation-testing-and-grading device.

skin with a measured pressure. This pressure can be increased in a step-wise manner by pressing the piston at the other end, and thus with this device also, 4 different grades of pain stimuli can be applied.

The sensory loss is graded by comparison with the contralateral or adjoining normal skin. Grade 0 means normal sensation (no sensory loss), while grade 4 means poor sensory perception. If the patient was unable to perceive the sensation even with the maximum (grade 4) stimulus, the sensory loss was recorded as grade 5 (complete loss).

Following this initial grading, the patient was given treatment with anti-leprosy drugs which generally consisted of dapsone 100 mg a day and clofazimine 100 mg on alternate days. On the next visit, usually 4-6 weeks later, the outline of the lesion was drawn again and the sensory loss graded at the same sites.

A fall in the grade indicated recovery of the sensation, while an increase in the grade indicated worsening and progression of the disease.

Results

Of the 8 patients studied, 5 patients had BT, 2 had BB and 1 had TT type of leprosy. In 7 of these patients, the sizes of the patches had decreased and concomitantly, there was adequate recovery of either both the sensations (Fig. 3) or at least of one of the sensations. In

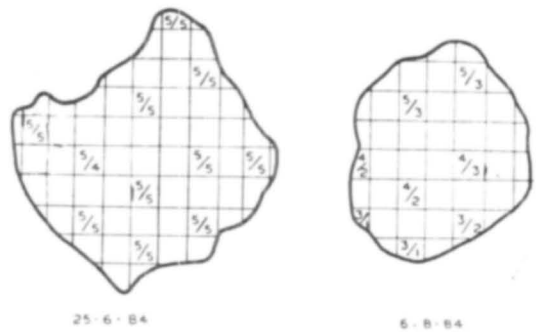


Fig. 3. Charting of a lesion with the sensory grades for touch/pain before and after treatment for 5 weeks.

the eighth patient, there was no change in the grade of the sensory loss, the grade neither reduced nor increased.

Comments

It is generally believed that the sensory loss in leprosy is permanent. We however, presumed that at least in some cases, especially in the early stages of the disease, part of the sensory loss could be due to pressure of the inflammatory process on the nerve elements and as the treatment leads to regression of the inflammatory pressure, the sensory loss could recover. The TSTG and PSTG devices have proved useful in objectively recording this recovery; because otherwise, it was almost impossible to be certain

if the sensations have recovered, especially because recovery from the sensory loss in leprosy may not be complete. In some cases (unpublished observations), the sensory loss has been observed to increase in spite of treatment and the lesions were also seen to increase in size, indicating lack of response to the treatment.

References

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