

COMMENT: SENSORY TESTING WITH NYLON FILAMENTS AND PENS

Sir,

Regarding the comprehensive and thorough paper by Lienhardt & Fine (*Lepr Rev*, 1994; **65**; 9–33), entitled ‘Type 1 Reaction, neuritis, and disability in leprosy. What is the current epidemiological situation?’, I would like to submit a few points:

The nylon filaments (Semmes–Weinstein filaments) are *not* expensive, unless purchased in readymade kits from the USA. In fact, they have been disseminated to scores of clinicians and leprosy centres throughout India since I returned to India in 1991 as an ALM disability prevention consultant. They are available free to any interested party within India (such availability in East Asia, Africa, and Latin America is to follow soon). The filaments are easy to assemble (instructions and procedures are included in the packet).*

In the Appendix it is stated that ‘each filament is applied 3 times in each tested area. If the patient points at least twice . . . the response is judged correct.’ This is not correct. On the contrary, 1 response, not 2, is both sufficient and more accurate. By requiring 2 responses, the evaluator changes the detection threshold significantly; the false detection rate is much too high.¹

Caution needs to be voiced concerning the use of the pen as a tool for sensory testing in many clinic and field contexts. Why? Although it does boast such assets as simplicity and low cost, in many parts of the world, including India where the majority of leprosy cases are believed to be found, the detection thresholds are considerably less than the pen can deliver. In Stratford & Owen² results showed that less than 2 g of pressure with the filament is necessary for detection. A few graded filaments of higher pressure values would ensure detection of change, serial change, of sensory status over time. As a pen’s application of pressure averages several grams above 2 g³ many patients with sensory involvement and underlying nerve impairment would be missed, i.e. those with WHO Grade 0 disability who, left untreated, would likely progress to Grade 1 disability, if the pen alone were to be used.

There are some regions where the plantar surface of the foot has an unusually high detection threshold to pressure application, such as Ethiopia.⁴ In most countries, however, a much lower

*Interested parties can write to the distributor for India: Dr R. Premkumar, c/o S.L.R.T.C. Post, Karigiri, Via Katpadi, T.N. 632106, India.

detection threshold is exhibited, such as is exemplified in Stratford & Owen's paper. In this author's study of hundreds of normal hands and feet in India⁵ the vast majority of subjects without any footwear were able to respond to the 2-g filament, with the exception of the heel; in that case the vast majority responded to the 4-g filament again, less than the pen can deliver. Details and tables of this study are to be published later this year in an Indian publication.

It is vital that your readership and diverse community of authors do not dismiss the value of the filaments which are available, reliable, and very practical in most settings, as well as being cheap. Certainly there are geographical settings where the pen may be optimal. But any prevention of disability (POD) programme that is earnest on addressing the large reservoir of patients (whether under treatment or RFT) with the Grade 0 disability, working to monitor them so their '0' status does not transform to Grade 1, would be well advised that with the stroke of the pen may likely miss such patients. Currently there are 6 project sites in India which are participating in a multicentre study, 'International project to measure peripheral nerve involvement underlying disability in leprosy'. The nylon filaments are an integral part of the compact screening format which, among other features, identifies nerve involvement at early stages, i.e. the Grade 0 level of disability according to the WHO grading system. Participating clinicians are excited to harness these features into their treatment and management regimes. A preliminary report on this study based in Carville is to follow.

3610-G Village Drive
Carlsbad
CA 92008
USA

R. S. JERSKEY

References

- ¹ Bell-Krotoski, Weinstein *et al.* Testing sensibility, including touch-pressure, two-point discrimination, point-localization and vibration. *Journal of Hand Therapy*, 1993; April-June, 114-23.
- ² Stratford CJ, Owen BM. The effect of footwear on sensory testing leprosy. *Lepr Rev*, 1994; **65**: 58-65.
- ³ Buford *et al.* Dynamic properties of the hand-held tactile assessment stimuli. The 34th Annual Conference on Engineering in Medicine and Biology, Houston, TX, USA, 1981.
- ⁴ Leinhardt C, Currie *et al.* XIVth International Leprosy Congress, Orlando, USA, 1993.
- ⁵ Jerskey, RS, Semmes-Weinstein nylon filaments for measuring touch-pressure thresholds of hands and feet—from an Indian context. XIVth International Leprosy Congress, Orlando, USA, 1993.