

Letter to the Editor

BALLPOINT PEN TESTING: LIGHT TOUCH VERSUS DEEP PRESSURE

Editor

Ballpoint testing is widely used in leprosy control (field) programs. In general, it is considered a 'quick and easy' method to test for (loss of) protective sensation of hands and feet. The pressure caused by the ballpoint pen is always assumed to be more or less comparable with a 10 g monofilament. However, to perform a ballpoint test correctly is not as easy as is often assumed. Standardization of this test is urgently needed.

In 1968, Goodwin and Watson wrote: 'A small, blunt instrument . . . may be used for the sensory test. It is first used where possible on the unaffected side of the body, in order to determine the minimum degree of pressure that needs to be applied in order that the patient may just feel it every time it is applied'.¹ This is still sound advice. A WHO Expert Group Report in 1970 and Ellen Kelly in 'Physical Therapy in Leprosy' in 1978 mentioned testing hand and foot sensation with a pencil.^{2,3} Later on, Jean M. Watson amended this advice because the varying sharpness of the point of the pencil (which caused erroneous results) to use a ballpoint pen instead.⁴

When measuring the pen stimulus on an electronic measuring device, with no additional pressure, the weight of the ballpoint pen (BIC type) varied between 5 and 12 g (recorded independently by L. Lehman, I. Petter and P. Schreuder). Even a 'slight' force pushes the pressure up to 30 g. Therefore, if we aim to approximate a pressure of 10 g or less, we should just rest the ballpoint on the skin, not exerting any extra pressure. Angling the ballpoint further reduces the pressure.

Unfortunately, during supervision visits, it is often observed that too much pressure is being applied. This results not merely in a slight dent but in a deep dent, blanching the skin (more than 300 g of pressure) which in normal persons would cause pain. The pressure is too great and far above the thresholds of protective sensation, which are in the order of 2 g for the hand and 10 g for the forefoot.^{5,6} Recommendations to apply pressure to produce blanching of the skin are found even in leprosy manuals and books.

In short: there is need to move the skin only minimally. Keeping the tester's hand supported (more stable), and the ballpoint angled, touch gently so that one can see just a slight movement of the skin. This will give sufficient pressure and should be felt by people with normal touch sensation. This will not only be easy to teach but will give more reproducible results and prevent false negatives. Self-care can be taught before injury or ulcers arise. We recognize that there are greater variations in test results on the heel and in dry climates where patients have hard, dry skin, making test results more difficult to reproduce consistently. In addition, the heel has been shown to have a higher threshold of normal sensation, leading to the recommendation that the heel be omitted as a test site when screening a foot for sensory impairment.⁷

We recommend that care be given when photographs or drawings are used to illustrate the ballpoint pen test. These should show the skin being touched and moved only minimally, without any skin blanching. During training courses, the health worker can touch his/her own skin to see how light a pressure can be felt by a person with normal sensation.

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