Editor—The editorial by Fettes and Wildsmith discusses the important issue of neurological damage after spinal anaesthesia with pencil point needles. They mention several factors about these needles and how these may predispose to neurological damage. I would like to comment on three of the four points they make in the section on equipment.

Their first point is that pencil point needles require to be inserted for a greater length because the needle orifice is situated approximately 1 mm proximal from the tip. Whilst the latter is true, there is no evidence of the former. We performed a pilot trial, which did not support this point (see below).

Their third point was that pencil point needles may require a slightly greater force to advance and that this may predispose to ‘overshoot’ and risk neurological damage. An in vitro study comparing 25 gauge Becton Dickinson Whitacre and Quincke spinal needles, showed that a threefold increase in force (0.12 kg) was required to puncture bovine dura mater with the former compared to the latter (0.04 kg). It would be logical to presume that greater force is required to advance pencil point needles through the other tissues in the back. The risk of ‘overshoot’ depends on how the force is applied; if it is applied in a controlled manner, there should be no overshoot.

Their fourth point concerned ‘tenting’ of the dura. Tenting of the dura does occur before puncture. Spinaloscopy in a system open to atmospheric pressure (cadaver dissection) has shown that the dura ‘tents’ and then retracts to its original position after needle puncture. This occurs with both types of needle tip but is more pronounced with a pencil point tip. The normal practice of spinal anaesthesia, however, occurs in a system which is ‘closed’ to atmospheric pressure.

We studied epidural pressures and distance to dural puncture in patients undergoing subarachnoid anaesthesia performed either with a Whitacre (pencil point) 25G or Quincke 25G spinal needle. The subarachnoid depth and dural tenting was similar in both groups, implying that a Whitacre needle is not inserted closer to the spinal cord. However, the median (95% CI) pressure recorded just prior to dural puncture was significantly more negative in the Whitacre group (–32 (–52 to –10 mm Hg) vs –2.5 (–10 to 5.5 mm Hg, P<0.02 in the Quincke group)). The higher pressure gradient would favour retraction of the dura back to its original position even more than in the ‘open’ system. This would obviate the need to advance the needle further to ensure the orifice is entirely within the subarachnoid space.

The production of a greater negative epidural pressure with the Whitacre needle generates the higher force required to puncture the dura and also limits the distance of tenting, which therefore limits the distance of the needle to the neural tissue. This would not be the situation in an ‘open’ system, such as the needle through the needle combined spinal epidural technique, where the negative pressure would not be generated.

We also agree that the timing of electrode placement is potentially more pronounced with a pencil point tip. The normal practice of needle puncture. This occurs with both types of needle tip but is more pronounced with a pencil point tip (0.04 kg).

Finally, we are grateful to Dr Serpell for providing additional evidence that the force needed to insert a ‘pencil’ point needle is greater. He argues that the risk of overshoot depends on how well controlled is the force used to insert the needle, but the real

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issue is that the greater the force needed, the greater the risk of
overshoot, especially in inexperienced hands. That is one of our
main concerns.

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