In summary:

- If using steroids, request an FESI not an SNRB.
- State the nerve root requiring treatment (L4 or L5 or S1), never the level (L4/5 or L5/S1).
- The needle tip starting point is directed by the number of the nerve root (L5) to be treated and is the safe zone under the same numbered pedicle (L5) for that nerve root.
- The nerve root compression anatomical area (lateral recess or foraminal) is non-contributory.

There has been a lot of confusion on these issues, and a lack of correct and logical teaching. As you rightly state, this means comparison of the effectiveness between different studies is diminished. Professor Rob Fraser of Adelaide, one of the spinal world's leading proponents of the success of spinal injections, taught all of his fellows (of whom there are many in the spinal community in the UK) the above correct needle tip placements in foraminal epidural steroid injections.

I hope that the reasoning is sound and helps clear up any misunderstandings.

AUTHORS' RESPONSE

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We are very grateful for the interest in our small study and for being given the opportunity to reply to those points that have been raised. It is clear from even just the two responses we have had that this is a topic worthy of further debate.

Mr Lavy queries whether a different technique might be used depending on whether the injection is diagnostic or therapeutic. A view might be that for a given injection at a given site, if a patient obtains a good but temporary response, the injection was diagnostic and if the effect is permanent, then the injection was therapeutic. We feel a key point is to know what exactly it is you have blocked so that you can interpret the result correctly and therefore make a meaningful decision about subsequent management.

Mr Chapple describes in detail his own philosophy on the use of spinal injections, which he calls foraminal epidural steroid injections (FESIs). To a certain extent, his response illustrates the very point our study makes in that there is more than one view on the role of spinal injections and techniques used.

We would agree with his comments regarding Professor Fraser, particularly as the senior author preceded Mr Chapple as one of Professor Fraser's spinal fellows. Professor Fraser's original paper on root blocks was in relation to lateral disc herniations.¹ The injection technique described in this work

Figure 1 Magnetic resonance imaging reported as showing a disc prolapse producing some compression of the traversing nerve root on the right side. (The arrow was added by the radiology department and has no significance in this instance.)

involved placement of the injection in the foramen at the level of the pathology, and into the potential space between the disc herniation and the affected nerve root. We would argue that this technique also allows for needle placement more medially towards the lateral recess for a more centrally placed disc prolapse and would therefore disagree with Mr Chapple's comments regarding this.

The purpose of our paper was really to draw attention to the variation that exists in terms of the use of nerve root blocks, which we can illustrate with the following case.

A 54-year-old woman was referred for consideration of surgery for right-sided sciatica. She had been suffering symptoms in an S1 root distribution. Her MRI (Fig 1) was reported as showing a disc prolapse producing some compression of the traversing nerve root on the right side.

The patient had previously undergone two root blocks, neither of which had given any relief. Figure 2 shows images from these two previous injections and also confirms that she has a transitional lumbosacral junction. The left image is an oblique view showing a block of the

Figure 2 Images from two previous root block injections, confirming a transitional lumbosacral junction. The white circles indicate the presumed pathology.

exiting root at the level of the disc prolapse. The right image shows a block of the exiting root at the level below. Steroids were used on both occasions, yet in neither case did the injection address the presumed pathology directly.

There are at least two important implications, which we highlighted in our discussion. First, if an injection was used as a diagnostic procedure, it is essential to know where it was placed. This is especially true if, for instance, as a clinician you refer your patients for a diagnostic procedure to be performed by staff from another specialty, such as radiology, as you need to know how to interpret the result. Second, in reviewing the literature, particularly in relation to those studies on the role of steroids, ask yourself whether you know at which level the injection was given in relation to the pathology. Have the authors made it clear in their paper? If not, then we suggest that the conclusions of that study should be treated with some caution. This is the message of our paper, which we hope encourages further debate on this subject.

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Computed tomography of the lumbar spine

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COMMENT ON

Ahmad Z, Mobasheri R, Das T *et al.*

How to interpret computed tomography of the lumbar spine. *Ann R Coll Surg Engl* 2014; **96**: 502–507
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I read with interest the article by Ahmad *et al.* It describes the role of computed tomography (CT) in assessing stability of fractures of the lumbar spine. While I agree that CT is a very valuable tool for looking at bony anatomy and much information can be gleaned from it, I think it is important to emphasise that in most situations when looking at spinal pathology, magnetic resonance imaging (MRI) is the investigation of choice.

The paper describes CT in terms of a trauma situation and spinal stability. Most polytrauma protocols around the UK do now include whole-body CT (including the spine) for the rapid triage of patients. In trauma, however, we recognise increasingly that a combination of physical examination, CT and often MRI is required to assess spinal stability thoroughly. The role of the posterior soft tissue structures of the spine, not to forget disc injuries, has moved us away from the three-column system as described in this paper to classification systems based on mechanisms of injury such as the Magerl classification,¹ the Thoracolumbar Injury Severity Score,² and the Thoracolumbar Injury Classification and Severity Score.⁵

CT certainly is an important diagnostic tool for spinal bony anatomy. It is often the investigation of choice when looking for spondylolysis, be it acute or chronic, but it is important to remember that the combination of physical examination, CT, MRI and mechanisms of injury are often more important when establishing stability and treatment options in trauma.

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