Review of: "Identification of Epidural Space: A Comparison Study Between Contrast Spread and Loss of Resistance Techniques"

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Potential competing interests: The author(s) declared that no potential competing interests exist.

Comments to the authors:

1. Rather than using the term “Early”, I shall better stick to accurate identification of epidural space. Safety is more important here than time.
2. Although most commonly used method to identify epidural space is LOR, but it is not only accepted method. Rather there are several other options available. Can you mention which LOR technique you have used here?
3. Use of fluoroscopic guidance during needle advancement as well as localization of the space is accepted standard of care in interventional pain practice, may not be the commonly performed practice during anesthesia as the facility is not routinely available at hand and is not always practical.
4. Using contrast after the final placement of the epidural needle is also a commonly practiced technique in most interventional pain practice and most pain practitioners do it to make sure the needle is in correct place and to see the even distribution of the dye. I cannot understand what unique you found in this practice. I can also see you are highlighting this as if you only do this, which is not true.
5. Which company manufactures 25 G Tuohy needle? Can you name the product and supply the picture?
6. Currently, the interventional pain procedures are indicated in spinal radiculitis after at least 6 months of failure of physiotherapy, pharmacological management, not before that. Even impact of epidural steroid is short lived and overall impact is questioned. Also, the safety of cervical steroid injection is under scanner. Also, it may require multiple injections. How do you defend the cervical steroid injection, which is much riskier than lumbar steroid, after mere 3 months of failure with conservative management? Who decided this protocol? You yourself or any recognized pain association did approve this protocol?
7. Why only insured patients were included? Does this indicate some financial conflict?
8. Did you do any pilot study or do power of study calculation before doing this RCT?
9. What was the procedure of randomization and blinding? Or they were not performed?
10. I can clearly see the selection bias as you selected the size of needle based on the cervical level of intervention and the sex of the patient.
11. When you had performed paramedian approach, does the size of space matter that much to choose needle size? I beg to differ.
12. What position the patients were kept for the cervical intervention?
13. So, you want me to believe that for 25 G needle we don’t need any LA skin infiltration? Does this not indicate you have

treated your patients unethically like a guinea pig?

14. When you can get a typical epidural spread of dye once the needle in epidural space unless there is severe spinal canal stenosis, why you had to use Epiderm device to confirm the final needle placement when you have not used LOR technique during the whole process? I cannot understand the scientific basis here.
15. I can understand the utility of Epiderm device will be good with less false negative results, but can this be so efficacious with a 25 G needle? I doubt. Has this been tested before in 25 G epidural needle? Can you show some reference?
16. Why no mention of statistical methods used here?
17. You should very well know the application of Student T test in non-parametric data. What is the point of mentioning this?
18. What was the incidence of accidental dural puncture in your study?
19. Manuscript is not written as per ICMJE standard.
20. How did you measure the safety of CST technique in your patients without following them for 6 months to 2 or 5 years? Can this be assumed based on your success only? Sorry, I beg to differ again. This is not scientific.
21. So, you think the LOR can be false negative, but CST cannot be? Are you sure? What about the presence of epidural cyst or subdural injection? And what will happen in case of previous spinal surgery or spinal canal stenosis? Will you be able to detect the epidural space with same easiness and certainty using CST method? Again, I beg to differ.
22. I agree that with finer needle it is difficult to interpret or get positive LORT. But does this mean use of a 25 G needle is fully safe for cervical epidural? I do not agree with this assumption. If LORT is better with 20 G I shall prefer that than difficult to get 25 G needle which has equally difficult to get the LORT.
23. Poiseuille's law is well known, no need for figure 2.
24. Smaller gauge needle also will pose difficulties in feeling the tissue resistance and passage through different layers. Even injection of radiocontrast dye through that needle is not that easy.
25. Manuscript is unnecessarily lengthened making review painstaking. Same is the conclusion section.

Strengths: Hardly much.

- Good idea of compare two techniques of localizing epidural space using finer needle.

Weakness: Many to even mention.

- Serious risks of selection and observational bias.
- Lack of randomization.
- Several loopholes in the hypothesis and study design.
- Cannot agree with many self-acclaimed decisions and comments made here.

Verdict: Though the study has an interesting new side, but it is plagued by several design, conduct and observational flaws. I have some serious conservations about the findings and claims. I cannot accept this study in the current form. However, I shall like to give the author a last chance to defend his side. If he comes up with suitable answers to my questions, I can give another look to the manuscript.