Author’s response to reviews

Title: Preprocedural Ultrasound versus Landmark Techniques for Spinal Anesthesia Performed by Novice Residents in Elderly: A Randomized Controlled Trial

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Author’s response to reviews:

We would like to thank the Editor for his valuable feedback on the revised manuscript and for the chance to be published in your journal pending revision. Kindly find below a detailed response to the Editor’s and Reviewer’s points raised and the amendments that have been made in red in the revised manuscript.

Editor

Comment 1: This should be the IQR. Please correct.

The IQR was calculated using the difference between 75th and 25th percentiles. However, as recommended by the Editor, the 25 and the 75 percentiles were both presented throughout the manuscript and in table 2.

There was a typo error in the IQR of the median number of passes in groups LM [2 (2.75) and NOT 2 (3)].

Comment 2: Please, provide more informations about this calculation. What is the used method? Is it only based on the improvement rate of the techniques? Relying on Bernard Rosner’s method
The sample size required to detect a difference between two proportions was calculated using the following method: “JavaStat -- Binomial Proportion Differences” (https://statpages.info/proppower.html) (added to the revised manuscript). We did not use Bernard Rosner’s method, thus, there is no need for the common standard deviation of the «improved» group (US guided).

Comment 3: The gender and the type of surgery are not outcomes. Please correct.

The gender and type of surgery were not compared among the three groups (deleted from the Methods section of the revised manuscript).

Comment 4: These are demographic parameters, they are not outcomes, they should not be compared between the groups, since the study is randomized.

The demographic parameters were not compared among the three groups (deleted from the Methods section of the revised manuscript).

Reviewer 3:

Thank you for reviewing our manuscript. The issues were addressed as follows:

Abstract:

1. The aim of the study in the background section needs to be described in a better English language.

As suggested by the Reviewer, the aim of the study in the background section was modified to read: “We hypothesized that pre-procedural ultrasound (US)-guided paramedian technique and pre-procedural US-guided midline technique would result in a different spinal anesthesia success rate at first attempt when compared with the conventional landmark-guided midline technique in elderly patients”.

2. Background: English language needs improvement as there are lots of typos, grammar mistakes and unclear sentences that need to be addressed. The aim of the study should be better described.

The background of the Abstract was modified as suggested by the Reviewer (see reply to question 1).
3. The successful dural puncture rate on first attempt (primary outcome) was higher in groups LM and UM (77% and 73% respectively) than in group UP (42%; P<0.001). How you judge through beginner resident?

Since it is a teaching institution, spinal anesthesia is routinely executed by first year clinical anesthesia residents (CA-1) learning the technique under direct staff anesthesiologist supervision. It would be difficult to conduct such study by experts.

Methods:

1. Again, a lot of grammar and spelling mistakes needs to be addressed.

Grammar and spelling mistakes were addressed as suggested by the Reviewer.

2. Please clarify Sample size Calculations

The sample size required to detect a difference between two proportions was calculated using the following method: JavaStat -- Binomial Proportion Differences (https://statpages.info/proppower.html) (added to the revised manuscript).

3. Give more statistical details

We did the following modification in the Methods section of the revised manuscript: The demographic parameters and the type of surgery were not compared among the three groups.

4. Excluded (n=80) Not meeting inclusion criteria (n=51) Declined to participate (n=10) Other reasons (n=19) who decline to participate not enrolled in study and where other reasons

The other reasons include unavailability of the attending anesthesiologist performing the US imaging of the lumbar spine, unavailability of the research assistant, and cancellation of the surgery among others.

Results: Give images to explain your approach

There are many publications in the literature illustrating the approaches used in our study.

Discussion:

List of Abbreviations:

US: Ultrasound; LM: Landmark-guided midline; UP: Ultrasound guided paramedian; UM: Ultrasound guided midline technique; TM: Transverse median; PSO: Parasagittal oblique;
CA-1: First year clinical anesthesia residents; LFD: Ligamentum flavum-dura meter complex; PLL: Posterior longitudinal ligament. I agree with U/S only and all not international

Abbreviations

We agree with the reviewer that all listed abbreviations are not international; however we used them in place of long phrases that are frequently used in the text.

References

If more than 3 authors write et al

We followed the journal style found at submission guidelines. The following reference is an example retrieved from the instruction for authors; “Rohrmann S, Overvad K, Bueno-de-Mesquita HB, Jakobsen MU, Egeberg R, Tjønneland A, et al. Meat consumption and mortality - results from the European Prospective Investigation into Cancer and Nutrition. BMC Medicine. 2013;11:63”.