Author’s response to reviews

Title: Comparison of lumbar plexus block using the axis in-plane method at the plane of the transverse process and at the articular process: A randomized controlled trial

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Responds to the reviewer’s comments:

Reviewer reports:

Vishal Uppal (Reviewer 1): Thanks for the revised version of manuscript

The revised version is much improved but still considerable work needs to be done to improve reporting quality.

The popularity of lumbar plexus blocks (LPB) has gradually declined due to the high incidence of complications associated with the block and limited indications. Nye et al. 2013 in the follow-up of 2013 cases observed significant complications in 3.8% of patients receiving LPB. 9.4% patients reported prolonged sensory or motor deficits. 1.9% patients experienced persistent neurologic symptoms. One patient had a fall, one patient was readmitted for a possible bilateral spread, and two patients experienced symptoms of local anesthetic systemic toxicity (LAST). Dogan et al. 2014 have reported total spinal anesthesia. Delayed retroperitoneal hematoma (Aveline 2004) have also been reported. It is unclear if these complications can be prevented entirely with the use of ultrasound imaging. Authors have not acknowledged most of these potential complications in the manuscript.

Answer: Thanks very much for reviewer’s comment. It’s a very good advice. We have added this part in the discussion section.
Abstract: In the background, it appears that dual guidance is novel for LPB which is not true. Both control group and intervention group used dual guidance. This is a practice followed by most clinicians as plexus is usually not visible on ultrasound imaging. In conclusion, wording "excellent" technical choice is too strong. At best we can describe it as promising as the availability of data regarding this technique is limited from this small study of 60 subjects. As pointed out by authors, future larger studies will tell us in the complication rates are comparable to convention technique of LPB.

Answer: Thanks very much for reviewer’s comment. It’s a very good advice. We have rewritten this part.

Background: Lumbar plexus is located between anterior 2/3 and posterior 1/3 of psoas major muscle (not in posteri 1/3).

The argument is vague "the effect seems not very good."

The technique of block used for the control group was as described by Doi et al. this should be referenced.

Answer: Thanks very much for reviewer’s attention. It’s a very good advice. We have revised it.

Methods: The methods should be written in past tense as the study has been completed, currently all the description is in the future tense. The description of randomization is still awkward although it is acceptable. The initials of attending doctors have been should be given as CY, YC and YL and not CYY. The familiarity of the anesthesiologist in performing erector spine block is not relevant to the study. Should be removed.

Answer: Thanks very much for reviewer’s comment. It’s a very good advice. We have rewritten this part.

I am not familiar with the ultrasound-guided approach to the sciatic nerve block. The technique described resembles Labat landmark approach. Please provide a reference to support this approach.

Answer: Thanks very much for reviewer’s comment. It’s a very good advice. We have added the relevant reference.

While describing control, please reference figure 1, likewise while describing beach chair method, please reference figure 2 so that it is easy for readers to understand.

Answer: Thanks very much for reviewer’s comment. It’s a very good advice. We have added this information.

The needle insertion point in beach chair methods is at lateral abdomen wall. This means that the needle path may encounter bowel during the procedure. The possibility of injury to bowel during the technique should be acknowledged in the discussions section.
Answer: Thanks very much for reviewer’s comment. It’s a very good question. We have added this part in the discussion section.

The motor assessment scale is not standard or described adequately. It looks like level 1 and level 2 have been interchanged. Please provide a reference to inform if this is a validated way of assessing motor block.

Answer: Thanks very much for reviewer’s comment. We have revised this part to make it clearer and added the relevant reference.

The statement "It took roughly 15 sec to do motor assessment" If this was not measured at the time of study should be deleted.

Answer: Thanks very much for reviewer’s comment. We have deleted it.

Important details of the intra-operative management of the subjects are missing. Did the patients receive a general anesthetic or spinal anesthetic or sedation for Surgery?

If surgery was completed with just block and sedation implies high success rate of the block.

Answer: Thanks very much for reviewer’s comment. The patients who involved in this study did not receive a general anesthetic or spinal anesthetic but mild sedation. We have added this information in the result section.

Please specify if the trial design was superiority, equivalence or non-inferiority. The minimal clinically important has been incorrectly stated as 6.67, please delete.

Answer: Thanks very much for reviewer’s comment. We have revised it.

Results: Number of needle puncture is count data should be expressed in median and range (or IQR) not standard deviation.

Answer: Thanks very much for reviewer’s comment. We have revised it.

"There was no significant in ipsilateral sensation and motor blocking rate between two groups 5min, 15min and 30min after lumbar plexus block." The results for each time point is not presented.

Answer: Thanks very much for reviewer’s comment. We have deleted it according to your previous comment since all the values are non-significant.

Discussion: This section should start with important findings like epidural spread and needle visibility scores and not less important findings such as imaging, needling times and puncture attempts. Possible complication such as the possibility of bowel injury with lateral (beach chair) approach should be acknowledged.
Answer: Thanks very much for reviewer’s comment. It’s a very good advice. We have rewritten this part.

Avoid vague statements like "Although some people think" and "this phenomena may be ignored by many researchers".

Answer: Thanks very much for reviewer’s comment. It’s a very good advice. We have revised it.

The terminology "skew out" has been used multiple times. Please be use a more specific term or explain.

Again the use of term "excellent technical choice" in conclusions is aggressive. Please modify

Answer: Thanks very much for reviewer’s comment. It’s a very good advice. We have revised it.

The manuscript needs significant language and grammar editing

Answer: Thanks very much for reviewer’s comment. We have sent our manuscript to The AJE Company and got their premiums editing service.

Thanks for opportunity to review

Gianluca Cappelleri (Reviewer 2): Please include all comments for the authors in this box rather than uploading your report as an attachment. Please only upload as attachments annotated versions of manuscripts, graphs, supporting materials or other aspects of your report which cannot be included in a text format.

Please overwrite this text when adding your comments to the authors.

The manuscript is overall improved, although some concerns remains. The main trouble is its presentation. English was not revised. An English speaker is mandatory for grammar, syntax and sentence building. By now is very difficult to follow

Methods:

-Exclusion criteria: Aspirin? It is not an anticoagulants and should not be an exclusion criteria for RA

Answer: Thanks very much for reviewer’s comment. It’s a very good question. Aspirin is a main antiplatelet drug and we have revised this mistake. Although most guidelines consider neuraxial blockade is not contraindicated in the presence of aspirin or NSAIDS if given without concomitant thromboembolism prophylaxis because of its benefit for reduce the risk of cardiovascular mortality, an increased risk of bleeding in the presence of antiplatelet therapy does exist even if this incidence may be very low. In cases of neuraxial blockade, Ruff and Dougherty [PMID: 7303081] described a 2% incidence of spinal epidural hematoma with
subsequent paraplegia if a combination of aspirin and heparin was administered within 1 h after lumbar puncture. Stafford-Smith [PMID: 8706215] calculated the risk of spinal epidural hematoma after epidural anesthesia as 1: 150 000 in the presence of aspirin, 1: 62 000 in the presence of unfractionated heparin, and 1: 8500 in the presence of combined aspirin and heparin therapy. LBP is a technique of deep nerve blocks which may be prone to suffer bleeding complication. In order to ensure the safety of patients, we are very cautious and excluded the patients who use of aspirin since our beach chair method adopted the novel needling path.

Statistical analysis: the authors did not provide a reference for the incidence of epidural spread but stated that 40% of bilateral block in the beach chair approach reflect their own experience? While the incidence in control group is only 6.67%. Looking the results, If primary endpoint is the incidence of epidural spread, sample size calculation is not clear to me.

Answer: Thanks very much for reviewer’s comment. The incidence of epidural spread in control group and beach chair group has been interchanged because of our carelessness, and we have revised it in the revised-manuscript.