Author’s response to reviews

Title: Effect of interscalene block on intraocular pressure and ocular perfusion pressure

Authors:
Betul Basaran (betulbasaran1@yahoo.com)
Aysun Ankay Yılbas (aysunankay@hotmail.com)
Zeki Gultekin (mzekigultekin@yahoo.com)

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Author’s response to reviews:

Dear Editor, Thank you very much for giving us so many important suggestions. This letter is the response to the reviewers’ comments. Please do not hesitate to contact us if any questions. Thank you again for giving us the chance to modify our paper. Betul Basaran, M.D.

Reviewer comments:

Gianluca Cappelleri (Reviewer 1)
1. The authors performed a study to detect if the interscalene block decreases the IOP and OPP. Description of methods is confused. In the text there is no notice about general anesthesia, but in TAB2 they provide the ETCO2. Moreover, evaluations start 5 minutes after ISB but the onset was defined at 15 minutes. If general anesthesia was provide, which was the true starting point for the evaluations? Even the discussion should be revised in order to target with the aims and the reasons to perform the study.

Answer: All the patients scheduled for ambulatory shoulder surgery under regional anesthesia with single-shot interscalene block. ETCO2 were measured during nasal breathing while on room air through nasal sampling cannula. The patients were assessed every five minutes up to fifteen minutes for the development of sensory blockade. Although all patients had motor block the evaluation of motor block was not included to the methods of study. As we described in the method of the study needle position was confirmed with ultrasound image and nerve stimulator. True needle position were defined as deltoid, biceps OR triceps muscle contraction with nerve stimulator at a threshold current of 0.4-0.6 mA. We did not write “OR” in our first manuscript between biceps and deltoid. It was corrected. Discussion of our manuscript revised as you indicated in your comments.

2. Specific comments

• Methods

"30 patients". Please use letters at starting the sentence, not number. Answer: Corrected.

• Was surgery open or arthroscopy? Answer: All surgeries were performed either arthroscopically or through an open incision. This part included to the manuscript.

• Which drugs? Had you established before which were the drugs that could increase IOP? Answer: β blockers, Ca channel blockers, statins and nitrates

• Who performed all evaluations? Did an oculist measure IOP? Did you achieve a baseline data before ISB? Answer: IOP was measured by a nurse who was trained about use of hand-held tonometer. IOP in both eyes, were measured before ISB and 5, 10, 20, 30 and 60 minutes after ISB in the beach-chair position. All measurements were done before the surgery. These measurement were achieved before the ISB was established (5th, 10th minutes...
after block). Meanwhile, who performed the ice test to detect interscalene sensory block? Answer: Ice test for detection of sensory block was performed by the same anesthesiologist who was done interscalene block.

• Sample size: I'm not able to verify the sample. In which evaluation point you consider 0.2 mm Hg of difference significant? Please report also the SD. Answer: A detailed definition for the sample size estimation was included to the manuscript.

• P7-8L from 195 to 224. This paragraph is redundant and not relevant in the study. Answer: This paragraph was removed from the text.

• P9L240: It is worth to discuss how not only beach position but also especially some surgeon requires dangerous hypotension during shoulder arthroscopy. Answer: Beach chair position and/or induced hypotension both can cause dangerous hypotension. Related discussion was added to the text.

• P9L256: The lack of use of epinephrine is no a limit, please delete. Answer: This sentence was deleted.

Discussion

• This section should be revised in order to give more strength to the aim of the study. It is difficult catch the reason to perform the study. An important limit is that it is difficult understand what was the true aim: is the ISB or is the Horner Syndrome the cause of the change in IOP? This is crucial because the Horner S. is typically due to a larger volume of LA with cranial spread. Ultrasound allowed a dramatic reduction in LA volume during interscalene block. In my practice I don't use more than 15 ml of LA and Horner S. is a sporadic event. The authors achieved a 100% of Horner S. that not reflect the modern ultrasound practice. This issue should be better discussing. Answer: The use of ultrasound leads to decrease the need for local anesthetic dose and related complications. However the success rate in everyday clinical practice may be inferior to those reported in meticulously conducted clinical trials; 20-30 ml volume of local anesthetic dose is still used and related complications including Horner’s syndrome can be seen. During the use of low volume of local anesthetics, ISB related complications are seen in lower rate but it could be. So anesthesiologists should be aware of the possible effect of diffusion of local anesthetics to the cervical sympathetic trunk in especially elderly population. Since undiagnosed glaucoma incidence is six times higher among elderly patients. Luciano QUARANTA (Reviewer 2)

• Detailed methodology on IOP assessment should be given. Answer: IOP measurements were performed with Icare PRO Hand-held tonometer in the beach chair position at all time points. This device shows digital numeric values after each successful contact of probe with the cornea. The instrument was calibrated before use and once six measurements are completed, the final IOP is displayed. The probe was changed at each patient to avoid contamination. OPP and IOP should be corrected for the sitting or supine position (please refer to Quaranta et al Surv Ophthalmology 2013). Answer: All the IOP measurements were done in the sitting position and corrected OPP values were calculated as indicated in the Quaranta study. New figure of the OPP was created according to corrected OPP values.