

## Peer Review File

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### Review Comments

#### Reviewer A

As a reviewer, I enjoyed reading this article. It summarized well an update on perioperative pain management for thoracic surgery.

I can suggest just a few points to improve this paper.

Major concerns:

1. The authors should provide easily readable tables rather text narration to enhance the value of this manuscript.

Reply: Tables were added in order to make this article easier to read. Thanks for the suggestion; I too think it adds great value to the manuscript.

Table 1 summarizes how to use the different multimodal analgesic drugs in the perioperative period. Let me know if this reflects what you had in mind.

2. The authors should add some descriptions about the combination of multimodal treatment. Please refer to the papers, such as doi: 10.1093/ejcts/ezr151 and doi: 10.21037/jtd.2017.05.27.

Minor concerns:

1. The Methods section is too long. I think the authors should put Results and Discussions section just after the shortened Methods section.

Reply: The methods section was shortened, as suggested.

2. Line 162, nysora.ca ?

Reply: Thanks for noticing this error. A reference number has been added.

#### Reviewer B

Authors attempt to perform analysis of the literature for the preoperative pain management for thoracic surgery patients. Instead of providing a concise information that can be used by clinician, the summary provides a list of conflicting information about different ways to manage pain in this group of patients. It would be better to take the data and figure out how the different modality can be used to help patients with post-operative pain.

Please provide the best bundle that should be used for all patients followed by what

clinicians should do if the patients fail that treatment. That would organize the data better and provide a logical presentation of the data. There is no recommendation that is made based on the data presented.

Reply: Our goal was to present an objective and systematic review of all the multimodal analgesic strategies that have been evaluated in the context of thoracic surgery. The results are sometimes conflicting, reflecting why the debate on the optimal analgesic technique for thoracic surgery is still open. I realize that this may result into an article that is unpleasant and harsh to read. Your suggestion to organize the information in a table is very welcome. I added Table 1, which summarizes the evidence on multimodal analgesic drugs. I also added Table 2, which presents different combinations of multimodal analgesic interventions, depending on context (planned thoracotomy, unplanned thoracotomy, VATS, chronic pain...). Let me know if you would prefer a different type of presentation.

### **Reviewer C**

The authors reviewed a number of literatures regarding the management of perioperative pain management in patients who underwent thoracic surgery (thoracotomy and VATS). The authors illustrated detailed information of this issue, while this information need a clearer organization. Multi-level sub-titles are highly recommended to help the readers get accurate information. Tables or figures are also helpful when the authors listed conflicting information on different ways of managing pains in different patient groups (thoracotomy or VATS) and comparing different kinds of drugs in multimodal analgesia.

The authors mentioned treatment options for ipsilateral shoulder pain in “Objective” and reviewed relevant literatures. However, they did not give the “authors experience” in ISP. It’s recommended to add more information on this issue in “authors experience” and “Conclusion”.

Reply: According to your suggestion and that of the other reviewers, I have added two tables to the manuscript. Table 1 summarizes how to use the different multimodal analgesic drugs in the perioperative period. Table 2 presents different combinations of multimodal analgesic interventions, depending on the context (planned thoracotomy, unplanned thoracotomy, VATS, chronic pain...). I hope you will find it clearer and easier to read. I have also tried to enhance subtitles and separate sections more clearly. Let me know if you would prefer a different presentation.

I have also added the management of ISP in the ‘author’s suggestions’ section.

### **Reviewer D**

We thought that the manuscript by Clairoux et al. was generally well-written and

pleasant to read. The content was also quite complete.

It would enhance the paper if the authors used figures and tables to illustrate and summarize the different regional block techniques described in the text, as well as any relevant anatomy. Tables and/or figures would also be extremely useful to summarize the principles underlying an optimal analgesia regimen and the local protocols in effect at the authors' institution.

This would also be a very effective way to frame the paper's « take-home" messages.

It is important to remember that many readers will not be anesthesiologists, which makes the structure and clarity of the paper all the more important. A bit of background on the more recent block techniques would add some useful context. Practical take aways concerning dosage, chemical formula (for example liposomal local anesthetics), and route of administration (one-time injection vs perfusion) of different types of blocks with regard to their relative efficacy and duration of effect would be extremely useful to the reader. Also, as more and more patients are discharged early (even PO day 1), it would be very interesting to briefly explore how these technique can « carry over » to the outpatient setting.

The video is very well done. We agree that accompanying explanations would be relevant and helpful.

We very much look forward to the revised manuscript.

Reply: Thank you for your very useful comments. I have tried to give more background explanations on the plane blocks, which may be unknown to non-anesthesiologists. Tables were added to summarize the recommendations on multimodal analgesic drugs and their different combinations depending on the context. I hope you will find that it is easier to read. I also tried to be more practical in the 'author's suggestions' section.

### **Reviewer E**

We suggest that illustrating the paper with one or two figures, specifically to show the innervation of the chest relevant to the different nerve blocks alluded to in the text, as well as to show the timeline of the various anesthesiologic interventions as they relate to the chronology of the perioperative period, would do much to enhance the paper.

Reply: Here is the revised manuscript, which includes all the modifications that were suggested by the reviewers.

Figure 1 illustrates the innervation of the thorax that is pertinent to regional analgesia blocks.

Figure 2 is a timeline for using the different analgesic strategies, according to surgery type.