Author’s response to reviews

Title: Functionnal Recovery with Peripheral Nerve Block Versus General Anesthesia for Upper Limb Surgery: A Systematic Review Protocol

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Author’s response to reviews:

Reviewer #1

1. Keywords. Regional anesthesia, general anesthesia?

Response: In the keywords section we have modified the list as follows:

“Upper limb surgery, peripheral anesthesia, regional anesthesia, nerve block, brachial plexus, general anesthesia, postoperative recovery, functional recovery”

2. Background. General anesthesia is still performed frequently for upper limb surgery, and some patients may benefit from general anesthesia. In my opinion, description of benefits from general anesthesia is also helpful to show the aim of this protocol.

Response: Thank you for making this point. In the Background section of the revised manuscript we have added the following sentences to highlight the benefits of general anesthesia:

“Orthopedic surgery of the upper limb can be performed under general anesthesia or peripheral nerve block. General anesthesia is carried out with the injection of multiple anesthetic
agents to have the patient unconscious and insensible to painful stimulation. General anesthesia is a suitable option for anxious patients, long procedures and for patients with contraindications to regional anesthesia. […] Of upper limb surgeries, 20% are performed under peripheral nerve block and 80% are performed under general anesthesia. General anesthesia is safe, economical and familiar to both the patient and the anesthesiologist. Also, for multiples fractures, general anesthesia alleviates the pain faster. Indeed, the preoperative room time is the same. Finally, for multiples fractures, general anesthesia help to alleviate rapidly the pain. […] For elderly patient, it decrease the incidence of post-operative delirium. In case of severe trauma, vasoplegia from the sympathetic blockage can optimize blood flow and improve surgical outcome.

3. Methods. There will be some articles containing no data on the primary outcome (functional recovery) but data only on the secondary outcomes. Will you include these articles for analysis on secondary outcomes?

Response: This is an excellent point. Yes, the articles containing no data on the primary outcome but data only on the secondary outcomes will be included in this systematic review. We have clarified this point in the Types of outcome measures of the revised manuscript as follows:

“We will include studies with at least one of following study outcomes:

Functional recovery;

Range of motion;

Patient satisfaction regarding the anesthetic technique used;

Quality of life following the surgery;

Time interval from surgery to return to work.”

4. Whether ultrasonography was used or not is very important on success rate or complication rate, so please consider analyzing the impact of ultrasonography.

Response: We have now added the utilization of ultrasonography to the data to be extracted.

5. Line 188: PubMed/MEDLINE..?

Response: Thank you for pointing this out. We have modified the manuscript.

6. Line 213: please check the sentence.

Response: We have clarified this sentence as follows:
Two reviewers will collect data independently and in duplicate on a pretested form including: study design, baseline characteristics of the study population, details of the intervention (e.g., type of block, dose of local anesthetic, surgery, utilization of ultrasonography) and comparator, outcomes of interest (definition, unit of measurement and scales) and any miscellaneous data.

7. Line 228: unclear -> high
Response: We have clarified this sentence as follows:

“‘high risk of bias’

8. Line 237: a period
Response: Done

9. Line 263: 16,17 -> 16, 17
Response: Thank you, we have modified accordingly. The sentence was corrected.

10. Line 293: Do you have any reason to choose year 2008?
Response: Our point of reference for 2008 is based on a general consensus from co-investigators that 10 years of conference proceeding revision will be enough.

11. References. Please follow the citation style and the reference style.
Response: Thank you! We have now modified as suggested.

12. PRISMA-P. 11a is empty.
Response: The reference was added.

Reviewer #2

13. This study is well written. However, I think the topic of this study shows limited interest. Upper extremity surgery includes too wide range of operations from finger to shoulder which can perform surgery under regional anesthesia.
Response: We appreciate the reviewer’s skepticism regarding the wide range of upper limb procedures that may be performed under regional anesthesia, but we respectfully disagree that it limits the interest of the study. We believe that upper limb functional recovery is a common outcome for all of these different surgeries and that the biological rationale supporting improved functional recovery with regional anesthesia applies to all of these different procedures. By including a broad spectrum of procedures, we will summarize the whole body of evidence and increase the study power. We will explore heterogeneity in subgroup analyses. We added this view in the discussion section:

Taking in account the low number of publications on functional recovery of the upper limb, we have decided to include in this review surgery of all the articulations (shoulder, elbow, wrist and hand). Studies of the impact of peripheral nerve block on the post-operative period are only available for the short-term post-operative period. For the first seven days, literature shows potential benefits of peripheral nerve block over general anesthesia, but rebound pain can be seen at 24 hours, at the end of the effectiveness of the block if the patient does not take any medicine for analgesia. The long-term time point is more of an exploratory nature to see if there is an interest in having more information on this timepoints. We are aware that there are many confounding factors in the outcome at long term timepoint and will take this in consideration in the analysis of the data.

14. In the background section (page 3), "shorter time to first opioid consumption" might be changed to "longer time to first opioid consumption".

Response: Thank you. We have modified accordingly.

15. Primary outcome is functional recovery assessed by functional recovery assessment tools. However, it might be evaluated using different scale with different time point.

Response: Thank you for the point. We acknowledge that it may be challenging to compare results obtained with different functional recovery scale. We have thought about restraining the functional recovery to one score. However, this may exclude studies evaluating functional recovery with other scales. We have narrowed to two options to assess functional recovery. If possible, we will normalize the effect size of each studies and then pool the data which have the same measure. In addition, even if we were unable to pool study results, a narrative description of the outcomes in all included studies would be a relevant addition to the literature that would inform practice.

16. In the plan of meta-analysis, functional recovery through long-term more than 30 days seems little association with the type of anesthesia.

Response: Thank you for the comment. At this time, the literature suggests that locoregional anesthesia affects very short-term outcomes (on the day of the surgery and up to one week postoperatively). However, we know that a few studies have reported on recovery after the
hospitalization timeframe. We hypothesize that long-term outcomes may also be impacted by the anesthetic approach. Although many factors influence functional recovery, we argue that it is important to explore whether the type of anesthesia is one, especially given the patient-importance of functional status beyond the immediate post-operative period.