**Reviewer’s report**

**Title:** Tranexamic Acid in Total Shoulder Arthroplasty and Reverse Shoulder Arthroplasty: A Systematic Review and Meta-Analysis

**Version:** 0  **Date:** 04 Nov 2017

**Reviewer:** Michael Fu

**Reviewer's report:**

This is a largely well-written and timely review and meta-analysis of the literature regarding the effect of TXA on transfusion, blood loss, and other complication outcomes follow anatomic and reverse TSA. The meta-analysis is well done and the authors used an appropriate search strategy. At no fault of the authors, the literature on TXA and TSA is relatively sparse, however, sufficient for the authors to arrive at their conclusion that TXA is safe and effective at reducing perioperative blood loss with TSA. While there are several questions and suggestions for the authors as detailed below, I believe this paper would be a valuable addition to the TSA literature with revision.

**Background**

- Shoulder arthroplasty indications have also expanded in recent years to cuff tear arthropathy and massive irreparable rotator cuff tears. Especially since several of your included studies (Vara et al., Kim et al.) include these indications.

- Line 75: "more current studies HAVE been published recently"

**Results**

- Lines 142, 152: I thought six studies were included, not five?

- Line 180: "TXA group WITHIN 48 hours"

**Discussion**

- Paragraph 2 should be rewritten - grammatical errors and awkward sentences
- Line 229: Not clear from your results that you can conclude from a statistical standpoint that IV TXA had better efficacy than topical TXA. Would err on the conservative side and simply conclude that IV and topical were both effective.

- Lines 232-238: The rationale for this paragraph is unclear - please explain how estimated total blood loss is determined. Also, one could argue that change in Hb may be influenced by variable fluid resuscitation protocols. Regardless, I'm not sure if this paragraph necessary to arrive at your conclusions.

- Line 239: Please provide a reference for the theoretical risk of thrombosis associated with TXA.

- Line 241: replace "postoperative" with "venous thromboembolic"

- There are more than 3 limitations to the study, you are highlighting just the most important ones. Recommend rewording to "This study has several important limitations". Other limitations should include: non-standardized doses of TXA, heterogenous transfusion protocols which may have a significant effect on one of your main study endpoints, and variable postoperative chemoprophylaxis.

- Lines 271: replace "efficient" with "effective" or "efficacious"

Other

- Replace "register" with "registry" throughout manuscript

- The numbers from your PRISMA diagram are not consistent with the numbers in the text, please correct.

- Figure 2 is very hard to read sideways. Recommend switching the rows and columns so there is less vertical text.

**Are the methods appropriate and well described?**

If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**

If not, please specify which controls are required in your comments to the authors.

Yes
Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

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