Reviewer’s report

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

Version: 0 Date: 08 Dec 2017

Reviewer: Jacob Calcei

Reviewer's report:

The current study being reviewed is a systematic review and meta-analysis looking into the outcomes following administration of tranexamic acid perioperatively in total shoulder arthroplasty. Overall, this is a well-designed and well-executed systematic review and meta-analysis including both randomized controlled trials (RCT) and retrospective cohort studies (RCS) looking at the effects of tranexamic acid in shoulder arthroplasty and I believe this manuscript will contribute to the literature.

Suggestions for revision are as follows:

1. ABSTRACT:
   a. The abstract is well laid out
   b. The aim of the study and their conclusions are clearly stated

2. INTRODUCTION:
   a. Background information is clearly described
   b. Prior related studies are explained
   c. They appropriately reference the hip and knee literature, which has more on tranexamic acid in arthroplasty
   d. Lines 60-64 (second paragraph) - the authors should acknowledge the potential bias associated with these studies - mainly that sicker patients that are more likely to require transfusions are also more likely to have other complications such as MI, pneumonia, stroke, etc and that it is not likely the transfusion itself that causes it.
e. Line 75 change "has" to "have", should read: "current studies on this issue have been published.

f. A line noting expectations/hypothesis at the end of the intro would be beneficial

3. MATERIALS AND METHODS:

a. The methods are clearly described and the statistics seem appropriate

b. Their data sources, including CENTRAL, EMBASE and MEDLINE are appropriate - search details included in supplemental material

c. Additionally, the use of the Cochrane Collaboration bias tool was valuable

4. RESULTS:

a. The results are clearly described

b. Line 139 mentions 17 studies were initially found, while Figure 1 notes n=24; this discordance needs to be resolved

c. Line 140 notes 9 duplicates were removed, while Figure 1 notes 12 were removed; again this needs to be corrected

d. Line 141 notes 3 additional studies were excluded, while Figure 1 notes 6

e. Line 142 says 5 studies were included, while Figure 1 and the Tables show 6 were included, and 6 are listed in lines 142-143; this needs to be corrected

f. Line 177 says 5 studies compared blood loss via drainage but table 3 notes 4 studies

  g. Additionally, line 178 notes "135 and 132" (TXA and non-TXA in the RCTs), while table 3 notes 136/131

h. Line 198 typo: should read "(Table 3)"

5. DISCUSSION:
a. The discussion is well thought-out. The authors referenced the better established hip and knee data on TXA.

b. Line 217 should read: "which implied that patients undergoing RTSA bled more than TSA."

c. Lines 217-218: the sentence starting with "RTSA differs from TSA" can be deleted as it is not necessary to state

d. Lines 219-220 should read: "dead space in RTSA, resulting in more bleeding."

e. Line 230 delete "Thus"; should read: "For patients with…"

6. LIMITATIONS:

   a. The limitations of the study are well delineated in the discussion section.

7. CONCLUSIONS:

   a. The conclusions are appropriate based on the data presented.

8. REFERENCES:

   a. The references used seem appropriate.

9. FIGURES and TABLES

   a. Figure 1 - needs to be corrected as mentioned above in the results section

   b. Table 2 - multiple words are cutoff as the columns are running into the adjacent column (wrap text should be used)

   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.

I recommend additional statistical review

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Please indicate the quality of language in the manuscript:

Acceptable

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