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Letter to editor

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With reference to the article titled “Use of a Tourniquet in Total Knee Arthroplasty Causes a Paradoxical Increase in Total Blood Loss” by Authors Timothy Shnettler, Natalie Papillon and Horold Rees in JBJS Volume 99-A, Issue 16: 1331-1336; we would like to have some clarifications.
To begin with, we would like to congratulate the authors of the mentioned article for presenting an excellent work demonstrating the safety and efficacy of two relatively novel interventions in total knee arthoplasty, i.e. omitting tourniquet use during the surgery, and use of tranexamic acid.

However, the study has raised two questions in our minds. First of all, the study groups were selected on temporal basis resulting in difference in the level of surgical experience of the arthoplasty team for each group. Previous orthopedic studies (1,2) although not from the sub specialty of arthoplasty, have demonstrated that with increased experience, the surgical blood loss is significantly reduced. Since the study duration was spread over one and a half year, during which the efficacy of the team as a unit is expected to gradually improve. This, coupled with continuous advances in intra operative hemostasis techniques, may have gradually reduced the blood loss over the duration of study, creating a selection bias for the patients in progressive groups. Hence, a study with better method of randomization may be required for validation of these results.

Secondly, the gross method of calculating the total perioperative blood loss was found to be least reliable with respect to TKA, in a previous study (3) comparing various methods of calculating perioperative blood loss in TKA. Hence, the results of this study may not be completely reliable.

[We] [h]ope, the respected authors may shed some light on our concerns regarding the validity of the results of this study.

References

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Conflict of Interest: None Declared

Article Author Response

5 December 2019

Article Author(s) to Letter Writer(s)

Dear Editor,

We appreciate Dr. Choudhary's comments regarding our paper. Regarding the first question, that surgical team experience may have affected the results of the study, the surgeries were all performed by an experienced, fellowship-trained arthroplasty surgeon (HWR) with assistance from a rotating group of residents, so variability in surgical times was minimal and this variability would have been standard during the course of the study. While table 2 notes a statistically significant difference in operative times, the overall difference was 9 minutes longer with the first group compared with the second and third groups, which is not likely to be clinically significant in terms of blood lost during the surgery. In response to the second question, that the modified Gross formula is not the most accurate way to measure blood loss, we used that method because previous papers published in the area of tourniquet use have used the same method, and we wanted to be consistent with those papers. In addition, although the cited reference from the Chinese Medical Journal states that the hemoglobin balance method is the most accurate, the discussion section also contains the statement "Results for Hb-balance and the Gross equation were similar." Because of the previous use of this method in other work and the fact that the Gross formula gives similar results to the hemoglobin balance method, we believe valid conclusions can be drawn from our work.

I trust that this response answers the questions raised by Dr. Choudhary.

Sincerely yours,

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