

LETTER TO THE EDITOR

Prophylactic Fibrinogen Reduces Excessive Bleeding in Total Hip Arthroplasty Surgery: A Randomized Double-blinded Placebo-controlled Trial

Dear Editor

We read with interest the article titled "Prophylactic Fibrinogen Reduces Excessive Bleeding in Total Hip Arthroplasty Surgery: A Randomized Double-blinded Placebo-controlled Trial" authored by Alireza Shakeri et al.¹ with great interest. We commend the authors for their efforts to demonstrate the hemostatic effect of fibrinogen in total hip arthroplasty. However, we are concerned about the lack of clear criteria for postoperative blood transfusion in patients undergoing total hip arthroplasty. This crucial aspect significantly influences the methodology of this study.

In the Materials and Methods section, the authors did not specify the postoperative blood transfusion criteria for patients undergoing total hip arthroplasties, such as postoperative serum laboratory data (hemoglobin < 8 mg/dL) or the threshold for intraoperative blood loss above a certain volume, etc. In addition, there is no explicit description of the clinical conditions that would determine the threshold for administering a red blood cell transfusion of 1/2/3 units in these patients. These shortcomings leave

the reader in doubt about the standards of postoperative blood transfusion in this trial and, consequently, the uncertainty about the potential clinical efficacy of fibrinogen.

In conclusion, we sincerely appreciate the authors' leadership in conducting such a remarkable study and share a deep interest in their research. However, we hope this letter will help address our concerns and clarify any uncertainties we may have about the study.

Sincerely,
Zhi-Hong, Zheng MD ^{1,2}

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References

1- Shakeri A, Abtahi D, Shahmansouri M, Manafi-Rasi A. Prophylactic Fibrinogen Reduces Excessive Bleeding in Total Hip Arthroplasty Surgery: A Randomized Double-

blinded Placebo-controlled Trial. Arch Bone Jt Surg. 2023; 11(8):524-30.doi: 10.22038/ABJS.2023.69727.3274.

Response to the Letter 1**Dear Editor**

Thank you for sending me the valuable response of Zheng Zhi-Hong about our last article.¹ This article demonstrates that prophylactic fibrinogen might improve the outcomes of total hip arthroplasty (THA) surgery by decreasing

perioperative bleeding and blood transfusion.

Due to our national blood transfusion guideline,² the transfusion threshold of 8 g/dL for hemoglobin (Hb) concentration was used for non-ischemic heart disease patients, and this threshold was used in both groups as they



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were blinded to the attended anesthesiologist. Also, it should be mentioned that the other criteria for the administration of packed red blood cells (PRBC) was hemodynamic alteration, defined as decreasing mean arterial pressure (MAP) by more than 20% despite maintaining anesthesia depth in the normal range by bispectral index (BIS) of 40 to 60. These criteria were also used for the postoperative period by monitoring hemodynamics and assessing laboratory tests. Six hours after the transfusion, another blood sample for evaluation of Hb was done, and in the case of the aforementioned criteria, more PRBC was transfused if needed. By this approach, none of our patients showed a

significantly low Hb concentration for more than one PRBC needed for transfusion at the same time.

Due to the lack of English translated edition of the national blood transfusion guideline, this reference was not mentioned in the main manuscript. We appreciate Zhi-Hong Zheng for being concerned about this crucial aspect of our work that needs clarification.

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1. Shakeri A, Abtahi D, Shahmansouri M, Manafi-Rasi A. Prophylactic Fibrinogen Reduces Excessive Bleeding in Total Hip Arthroplasty Surgery: A Randomized Double-blinded Placebo-controlled Trial. *Arch Bone Jt Surg.* 2023; 11(8):524-30. doi:10.22038/abjs.2023.69727.3274.

2. Iranian National Guideline of Transfusion. Available at: <https://iranesthesia.org/wp-content/uploads/2016/09/Iranian-National-Guideline-of-Transfusion.pdf>, 2016.

Response to the Letter 2

Dear Editor

Dr. Zheng Zhi-Hong provided a thoughtful response to our article submission, which we appreciate.¹ We looked into how low-dose intravenous fibrinogen could lessen bleeding during and following hip arthroplasty surgery. The need to have a clearer understanding of the anesthetic technique used to reduce bleeding during total hip arthroplasty served as the driving force for this work.

The national blood transfusion guidelines of Iran are typically followed in our hospital when transfusing blood.² According to those recommendations, a patient's clinical status should be considered before deciding whether or not an RBC transfusion is necessary. Patients with a hemoglobin level of greater than eight grams per deciliter are not allowed to receive postoperative blood transfusions in the absence of severe ischemia of the myocardial or cerebral arteries. Our blood transfusion criteria, which were based on hemodynamic alterations, required a decrease in mean blood pressure of greater than 20%. A unit of RBC was transfused if blood transfusion was required during the postoperative period using the same manner, and hemodynamic variables and hemoglobin levels were assessed for this purpose. The patient's hemoglobin was

assessed 6 hours after the transfusion, and the results carried out additional blood transfusions that might be required. There were no instances where the hemoglobin level was so low that blood units had to be simultaneously transfused.

Although our study concentrated on the quantity of bleeding during and after surgery, we agree that the fundamental drawback of our study is the lack of clearly defined criteria for postoperative blood transfusion. According to the language of the article, the national standards for blood transfusion were used to determine the requirements for blood transfusion. I concur that this section of the article needs a reference to be made. Despite this, if we utilized this instruction as a reference, it might not be accepted because it is only available in Farsi, and there isn't a specific written article about it. As a result, we didn't refer to this directive.

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1. Shakeri A, Abtahi D, Shahmansouri M, Manafi-Rasi A. Prophylactic Fibrinogen Reduces Excessive Bleeding in Total Hip Arthroplasty Surgery: A Randomized Double-blinded Placebo-controlled Trial. *Arch Bone Jt Surg.* 2023; 11(8):524-30. doi: 10.22038/ABJS.2023.69727.3274.

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