Author’s response to reviews

Title: Anemia and perioperative mortality in Non-cardiac Surgery patients: a secondary analysis based on a single-center retrospective study

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Dear Editors and Reviewers:

Thank you for your letter and for the reviewers’ comments concerning our manuscript entitled “Preoperative anemia and postoperative thirty-day mortality in patients undergoing non-cardiac surgery: a secondary analysis based on a single-center retrospective study.”(BANE-D-20-00084). Those comments are all valuable and very helpful for revising and improving our paper, as well as the important guiding significance to our researches. We have studied comments carefully and have made correction which we hope meet with approval. Revised portion are marked in red in the paper. The main corrections in the paper and the responds to the reviewer’s comments are as following:

Responds to the reviewer’s comments:

#Mehmet Aksoy (Reviewer 1):

1. This study was planned incorrectly methodologically. Patient groups are not homogeneous. The average age of the groups, the type of surgical intervention they have undergone, the ratio of male and female, race, anesthesia type, emergency or elective surgery status, surgical risk status, ASA status etc. are different from each other. You cannot statistically compare patient groups with such heterogeneous features. As a result, the design of the study was not done correctly and there are deficiencies that cannot be corrected. This study must be urgently rejected.
Response: We have modified methodology of this research. Multivariate regression, propensity score analysis, doubly robust estimation, and an inverse probability-weighting model was used to ensure the robustness of our findings. Considering the differences in baseline characteristics between the two groups of eligible participants, propensity score matching was used to identify a cohort of patients with similar baseline characteristics. Matching was performed with the use of a 1:1 matching protocol without replacement (greedy-matching algorithm), with a caliper width equal to 0.05. The doubly robust estimation method, the combination of multivariate regression model and a propensity score model, was also applied to infer the independent associations between anemia status and patients’ primary and secondary outcomes. Using the estimated propensity scores as weights, an inverse probabilities weighting (IPW) model was used to generate a weighted cohort. A logistic regression was then performed on the weighted cohort, adjusting for the variables that remained unbalanced between different anemia groups in the propensity score model.

Special thanks to you for your good comments.

We tried our best to improve the manuscript and made many changes in the manuscript for other issues. These changes will not influence the content and framework of the paper.

We appreciate for Editors and Reviewers’ warm work earnestly, and hope that the correction will meet with approval.

Once again, thank you very much for your comments and suggestions.