Reviewer’s report

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

Version: 0 Date: 23 Feb 2020

Reviewer: Osama Abou-Arab

Reviewer's report:

I read with interest the 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".

The authors assessed if preoperative anemia is an independent risk factor of 30 day mortality. They conducted a retrospective study with analysis of a Singapore Hospital database including more than 80,000 patients whom underwent for general anesthesia. they used a univariate and multivariate logistic regression. They found that preoperative anemia was an independent risk factor of mortality.

The subject is interesting but I have some major concerns:

1. concerning the definition of anemia, the authors used The Who criteria used on gender type. However the authors should remind the values of anemia in the method section. Besides, in the results, proportion of patients with preoperative anemia should be explicit and reported in a table.

2. concerning the population, I am quite confused on the inclusion and exclusion criteria. In the abstract, the population study concerns patients under general anesthesia but in table 1 there is a proportion of patients under RA. To be more clear, the population study should be reported clearer in the methodology section. Also, please could the authors perform a flow chart in addition to the others comments.

3. about surgery, we do not any data on the type of surgery patients went for. What is "low" "moderate" "high" surgical risk reported in table 2?

4. reported results in table are truly hard to read. In table 1, could the authors only reported the proportion of patients concerned by the variable rather that keeping 2 lines for each variable (keep only "yes" line please)? A lot of abbreviation without a recall in the legends are used (DM insulin,CHF category,RCRI category, CVA category,....)
5 anemia is categorized as mild moderate and severe in table 1. However no definition of these groups is reported in the manuscript. Please report The Who criteria as mentioned in the method section.

6. In table 2, what is the analysis for? the 30 day mortality? Please specify the title. What is RDW?

7. Figure 1, the is no title. Please add one.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

No

**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

**Quality of written English**
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

**Declaration of competing interests**
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?
3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal