Reviewer's report

Title: Cardiac Surgical Outcome Prediction by Blood Pressure Variability Indices Poincaré plot and Coefficient of Variation: an Observational Study

Version: 0 Date: 15 Oct 2019

Reviewer: Osama Abou-Arab

Reviewer's report:

The author aimed to predict postoperative outcomes after cardiac surgery based on blood pressure pulsatility variation. In a previous study, they showed association between CV/AKI and CV/30day mortality. This time, the authors assessed Poincaré plots and coefficient of variation (CV) ability to predict mortality and AKI.

The conducted a retrospective study on 3687 patients. The endpoint was 30-day mortality and postoperative AKI. They used the same data base as in a previous publication (Blood Pressure Coefficient of Variation and Its Association with Cardiac Surgical Outcomes, Anesth Analgesia, 2018).

Hence, the same result is presented concerning CV and endpoints. There is no association between SD and endpoints.

Last prediction ability of CV and SD was poor to predict study endpoints.

The authors must be congratulated for their effort.

Here are my comments:

- I am not a statistics expert. However why the authors used a C-statistics whether than using a ROC curve to predict AKI and mortality?

- How the authors explain the association between CV and endpoints but the absence of ability to predict these endpoints. Please add a comment in the discussion section on that point.

- Mortality is a robust endpoint and easy to get in a retrospective study. Can the author explain how AKI was defined in the database? (oliguria? requirement for extra renal therapy?)

Minor comments:

Title: I would precise It is a retrospective study.

Abstract: Please define the descriptors SD
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.

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

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Please indicate the quality of language in the manuscript:

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