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: 09 Oct 2019

Reviewer: Jose Navas

Reviewer's report:

The authors present a novel application of the poincaré method extrapolated from heart rate variability to blood pressure variability and utilize it as a predictor of postoperative outcomes after cardiac surgery with main goals being 30-day mortality and post-op AKI.

Couple of details that require clarification:

- One of the matters that are not clear to me is whether you can parallel the main use of the poincaré (heart rate variability, beat-to-beat), to a sample of every 15 seconds for the BP as stated by the authors in the manuscript. As stated by Hsu et al (cited in the manuscript), it seems to be that the power (sensitivity) of the poincaré method relies on readily/real time data (such as the heart rate), thus the results obtained from the study proposed by the author are not surprising. It is always difficult to educate the readers regarding a method that was not successful in predicting the outcome that was expected. In other words, shall we conclude from this study "do not use Poincare for BPV"? or Poincare cannot be used for BPV and therefore its predictive value for outcomes is not good?

- How were you able to retrospectively assess BP every 15 seconds to start with? The usual anesthesia record (even the electronic ones) when evaluated retrospectively most of them provide information every minute, please explain…

- Page 4, 49, please fix the word "associations"

- Page 10, 47, please fix "ability"

- I would recommend removing from the conclusion "our study demonstrates the feasibility…". Based on the results, the use of Poincare for BPV are essentially not valid and the word feasibility may confuse the readers, I would recommend starting with: "We demonstrated that SD1....."
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 am able to assess the statistics

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

Acceptable

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.