Reviewer’s report

Title: Reliability of pleth variability index in predicting preload responsiveness of mechanically ventilated patients under various conditions: a systematic review and meta-analysis

Version: 0 Date: 18 Feb 2019

Reviewer: Demetrio Pittarello

Reviewer’s report:

In this work the authors describe the reliability of pleth variability index in predicting preload responsiveness of mechanically ventilated patients under various conditions. PVI is subject to the same limitations as other functional hemodynamic parameters such as SVV and PPV, including reduced reliability during arrhythmias, right heart failure, spontaneous breathing activity, and low tidal volume (<8ml/kg). There are certain clinical scenarios where it is not recommended or not possible to use. In general, PVI is less accurate and therefore not recommended for spontaneously breathing patients, for patients with cardiac arrhythmia, for patients with extremely low PI, such as some ICU patients treated with vasopressors. PVI is also not recommended for patients undergoing open chest or laparoscopic surgery. Lastly, it may be unnecessary to use PVI for patients who require an arterial line. PVI also has some limitations specific to its technology such as movement artifacts. A similar work has already been published in a lower number of patients where the results are similar: "Accuracy of pleth variability index to predict fluid responsiveness in mechanically ventilated patients: a systematic review and meta-analysis" (J Clin Monit Comput, 2016, 30:265-274).

However, the current work is an update of what has been published so far.

I think is still necessary to descrive better the PI as well as the PVI method. Furthermore, the cut off related to the suggestive value of responsiveness is not described. Finally it is necessary to correct Spearman which must be written with a capital letter and figure 2 is not clear for which it is better specified.

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.

Yes

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:

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.

No conflict of interest

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