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: 1 Date: 07 Apr 2019

Reviewer: Massimo Meco

Reviewer’s report:

I have carefully read the answers given by the authors in response to my objections and all my doubts about the study remain.

1) The description and the comment about the heterogeneity are repeated twice both in the results and in the discussion. The sentences used are the same.

Authors should leave methodological considerations only in the results.

2) There are still grammatical inaccuracies to be reviewed.

3) My previous comment on the paper focused mainly on the fundamental methodological issue of the high heterogeneity within the study.

It must be acknowledged that the authors have made every effort to justify and understand this homogeneity, but have probably failed. Heterogeneity remains very high despite all the analysis carried out (sensitivity analysis, detailed subgroup analysis, meta regression, and strict quality assessment). The authors found that only in medical patients and in those treated with colloids the heterogeneity was lower and therefore more easily justified.

Methodologically this could be corrected, but exposes to the risk that the results could be due only to chance. In a meta-analytical study the risk is to consider "significant" the results due only to chance.

4) The authors stated that "we believe that heterogeneity will not have a fundamental impact of the reliability of the meta-analysis results".

I am not absolutely sure of this statement, in fact I consider it incorrect.

The correct statement would have been: "with the data emerging from our meta-analysis, no certain assertion can be made. The study provides interesting data, but without any methodological certainty."
5) Even the extreme variability of cut-off values (from 7% to 20%) suggests that the population included in the meta-analysis is so variable that it cannot be correctly analyzed.

6) In the conclusions the authors state that the patients undergoing cardiac surgery were suitable for PVI, but I think it is a mistake since in the study it was stated that the patients not subjected to surgery were suitable for PVI.

**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.

No

**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:

Needs some language corrections before being published

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