Reviewer’s report

Title: Evaluation of peripheral perfusion index and heart rate variability as early predictors for intradialytic hypotension in critically ill patients

Version: 2 Date: 09 Dec 2019

Reviewer: Reviewer 2

Reviewer's report:

PEER REVIEWER ASSESSMENTS:

OBJECTIVE - Full research articles: is there a clear objective that addresses a testable research question(s) (brief or other article types: is there a clear objective)?
Yes - there is a clear objective

DESIGN - Is the current approach (including controls and analysis protocols) appropriate for the objective?
Yes - the approach is appropriate

EXECUTION - Are the experiments and analyses performed with technical rigor to allow confidence in the results?
Yes - experiments and analyses were performed appropriately

STATISTICS - Is the use of statistics in the manuscript appropriate?
No - there are issues with the statistics in the study

INTERPRETATION - Is the current interpretation/discussion of the results reasonable and not overstated?
No - there are minor issues

OVERALL MANUSCRIPT POTENTIAL - Is the current version of this work technically sound? If not, can revisions be made to make the work technically sound?
Maybe - with major revisions

PEER REVIEWER COMMENTS:

GENERAL COMMENTS:
* What is your overall impression of the study?
This fairly well-written manuscript titled: "Evaluation of peripheral perfusion index and heart rate variability as early predictors for intradialytic hypotension in critically ill patients" describes an interesting analysis which showed that peripheral perfusion index and heart rate variability are early predictors for intradialytic hypotension in critically ill patients and adds to the literature in this less-studied area of research.

* What the authors' have done well?
The Introduction, Methods, Results and Discussion sections are fairly well-written.
In what ways does it not meet best practice?
I have severally read the manuscript; I have identified a few areas in the Methods and Results needing revisions.

REQUESTED REVISIONS:

1) Abstract

This section is well-written, clear and coherent. However, there is no further suggestion to improve the revision.

2) Introduction

The authors provided sufficient background information, placed the study in a broad context and highlight why it is important. Some key and important references on intradialytic hypotension in critically ill patients with acute kidney injury were reviewed and cited. The authors reviewed the literature very well and did identify some strengths, limitations and controversy that justified the study. In addition, the word count is compatible with journal publications in the medical sciences.

3) Methods

The Methods Section was well-written and detailed. The authors were able to provide adequate description of the subjects, adequate description of the inclusion and exclusion criteria, measurements made as well as variables retrieved. In addition, the Methods are repeatable and can be reproduced. The statistical analysis was fairly well done.

However, there is a concern here.
(i) "Chi-square test was used to compare frequencies between the two groups."
Comment: It is not likely that Chi-square may be applicable here because of the number of cells with expected or observed cells with less than 5 patients mean for a number of this proportions compared, using Fisher's exact test will be more appropriate.

4) Results

The Results Section is concise, fairly well-written and reflected the study findings. Currently, there is a correct and well-organized interpretation of the data. The Tables are clear and well-labelled. I have a few revision requests here.

i) Causes of ICU admission included severe sepsis, hemodynamic instability, pulmonary edema, eclampsia, diabetic ketoacidosis, and disturbed conscious level due to head trauma or non-traumatic intracranial hemorrhage.
Comment: Please, provide the number and proportion for cause of ICU admission.

ii) "The incidence of intradialytic hypotension was higher in patients admitted to dialysis due to pulmonary edema {odds ratio (95% confidence interval): 13.75(1.4-136)}"
Comment: This is not correct as the odds ratio here were not based on multivariable logistic regression analysis and the association might be influenced by potential confounders. But, besides the sample size
is too small to perform multivariable logistic regression analysis. Also, why was the unadjusted odds ratio for SBP not reported given that is far more significantly associated stable group

5) Discussion
The key Results of the study were well-discussed. Also, the authors extensively discussed the study findings which led to an interesting and accurate Conclusion. A good number of old but important studies were cited to discuss the findings of the study. In addition, the authors had excellent description of the limitations of the analysis.

However, for some of the analysis reported (such as Chi-Square test, and reporting unadjusted OR for pulmonary edema and leaving out SBP), the study has inadequate sample size to reach any reasonable statistical conclusion.

6) References
The number of references cited are adequate and up to date and the authors used a consistent format in writing their references.
ADDITIONAL REQUESTS/SUGGESTIONS:
As stated above

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.
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:
Acceptable
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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.

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