Reviewer's report

Title: High-frequency power of heart rate variability can predict the outcome of thoracic surgical patients with acute respiratory distress syndrome on admission to the intensive care unit: a prospective, single-centric, case-controlled study

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Reviewer: Fabian Dusse

Reviewer's report:

I-Chen and colleagues investigated the Impact of heart rate variability as an outcome predictor in thoracic surgery patients with ARDS. Several HRV variables are assumed to be associated with worse outcome.

Comments:

1. The methods regarding the HRV analysis is hardly understandable unless one is not familiar with Fourier analysis. Moreover the association between nVLFP and physiologic values (RAA Modulation, thermal Regulation, vagal withdrawal) is not comprehensible. I would recommend describing more extensively how the HRV analysis works and which values were calculated. The association to physiological values should be pointed out more clearly.

2. Many physiologic, clinical, and HRV data were taken and calculated with each other. The conclusions drawn out of the clinical data regarding ARDS outcome are not surprising and have been well described already. The large number of values does rather blurs the view on the relevant data, in particular due to the small sample size.

3. The discussion is, in wide parts, more a listing of studies related to outcome predictors and HRV. How to interpret the results of this study and for what they are worth in respect of the patient is not clearly pointed out. Neither similarities nor discrepancies between the different studies cited are really discussed. I would recommend focusing more on relevant data than to put every value into account.

All in all, the subject of HFR as a predictor for ARDS outcome is quite interesting and the study is well performed. But, from a clinical Point of view, the methods are hard to comprehend, the amount of presented values is confusing, thus the message of the study remains unclear.
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

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