Reviewer’s report

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

**Version:** 1  **Date:** 17 Jul 2019

**Reviewer:** Edward Clark

**Reviewer's report:**

Shaban et al. describe a prospective cohort study assessing the use of peripheral perfusion index and heart variability for the prediction of intradialytic hypotension during hemodialysis in critically ill patients.

Major comments:

- In Patients and Methods section: it is not described how patients were screened for inclusion (?on the basis of receiving IHD in ICU). Were there specific inclusion criteria otherwise? It is described how AKI is defined but only specifies elsewhere that critically ill patients were included - were only critically ill patients with AKI included?

- Please explain further what it means that patients "were scheduled for their first session intermittent hemodialysis according to...KDIGO guidelines."

- Important to specify when PPI and HRV monitoring was done - ?immediately prior to initiation of IHD.

- More details about the patient population would be important to know: e.g. were any patients on vasopressors or inotropes? How many were getting mechanical ventilation?

- The authors conclude that pulmonary edema was associated with more IDH but could this just be related to more aggressive fluid removal in these patients? Does the target or achieved ultrafiltration rate correlate with IDH?

- In Limitations section: other limitations include generalizability. The authors report 3 hr HD sessions max. - this is shorter than what is used at many centres and will lead to higher UF rates and possibly more IDH. Is there a way to account for vasopressor initiation or dose increase as another measure of IDH?

- Only 41 patients were screened for 36 thta were included. How were patients screened?

- For the 5 patients excluded for missing data: at what point exactly were they excluded?
Minor:

- More details about the dialysis parameters would be useful to know: sodium level, target and achieved ultrafiltration goals/rates.

- Abstract: line 11: "Early prediction..." - consider changing text to "could allow for prophylactic measures."

- Abstract: in methods - need to state when the HRV and PPI is measured relative to HD

- Introduction: "Intermittent hemodialysis is the usual route..." - suggest changing 'usual route' to recognize that, although often used, other modalities are also commonly used for critically ill patients.

- Introduction: "Predicting intradialytic hypotension ..." - suggest add the word 'modalities' after 'continuous'.

- Introduction: "Reduced HRV..." - this sentence and the following should be re-worded.

- Patients and Methods: section on definition of acute kidney injury definition: wouldn't all patients have KDIGO3 AKI on the basis of needing dialysis for AKI?

- Discussion: As above: suggest consideration of the role of ultrafiltration rate in IDH.

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.

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