Reviewer's report

Title: Relative cerebral hyperperfusion during cardiopulmonary bypass is associated with risk for postoperative delirium: a cross-sectional cohort study

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Reviewer: Frank Rasulo

Reviewer's report:

Dear Authors, the manuscript is interesting and shows confirms that both hyp- and hyperperfusion can lead to POD. However I would appreciate if a few points are addressed.

Page 3, lines 28,29. Substitute with "is an indirect measurement of"

Page 3, lines 59, "absence of acoustic window"

Page 5, line 6, can the authors specify where the 20% cutoff change of C02 was derived from?

Page 5, was POCD excluded based just on the POD onset time? Explain.

Since the authors performed static autoregulation testing every ten minutes, can they specify during which phase were the tests performed? Perioperative period, just during OR?

A important way of differentiating Emergence Delirium, POD from POCD is most certainly the onset and duration (Silverstein J et al, Anesthesiology, 2007). While the authors refer to how they diagnosed POD, no mention is made on how they excluded POCD, which lasts for weeks or months. Was this performed through follow-up? Regarding the nomenclature I would suggest to include a few words while citing this reference:

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?
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Not relevant to this manuscript

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Acceptable

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