Reviewer’s report

Title: Changes of cerebral regional oxygen saturation during pneumoperitoneum and Trendelenburg position under propofol anesthesia: a prospective observational study

Version: 0 Date: 20 Sep 2018

Reviewer: Duane Funk

Reviewer's report:

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I read with interest the article by Matsoka et. Al. I think the paper is important and should be published. It answers some very important questions about cerebral saturation.

There are some minor grammatical errors that need to be fixed prior to publication, but this can be corrected later.

I have several questions that I think the authors should address prior to publication:

* Can they explain why they chose 5% change in rSO2? Was this a change from baseline? Other studies have used a higher cutoff value. 5% seems kind of low.

* Can the authors explain what they mean by a protocol violation and why these 13 patients were excluded? Page 8 line 6.

*The biggest issue I have with the paper however is how the stats are reported. Specifically, the change in rSO2 as they relate to MAP and PCO2. The authors state 'Multiple regression analysis showed that change of rSO2 was correlated with MAP (P < 0.05) and PaCO2 (P < 0.0001).’ It would be better if the authors reported the regression co-efficients in both a univariate and multivariate manner.

It would be nice to know, and a completely novel result, how much of the change in rSO2 was due to MAP and PaCO2 changes. This information (both the univariate and multivariate analysis) will greatly enhance the paper.

* Can the authors comment on the potential of extra-cranial contamination from the oximeter? See Davie and Grocott 'Impact of extracranial contamination on regional cerebral oxygen saturation: a comparison of three cerebral oximetry technologies' Anesthesiology 116:834.
I wonder if being in Trendelenburg may have affected the relative arterial and venous content of skin blood and if the authors could comment on this.

*With these issues addressed I think the paper will add to the literature on the basic physiology of cerebral oximetry.

**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

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Yes

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