Reviewer’s report

Title: Tourniquet-induced tissue hypoxia characterized by near-infrared spectroscopy during ankle surgery: an observational study

Version: 0 Date: 26 Feb 2019

Reviewer: Filippo Sanfilippo

Reviewer's report:

Dear Professor Noto,

Thank you for inviting the review of this interesting study on evaluation of tissue perfusion via NIRS in patients undergoing tourniquet application.

I find it well conducted methodologically although with some limitation. The main issue with the study is that presently does not seem to hold a specific meaning from clinical perspectives. This is acknowledged by the authors.

The English is acceptable (may be slightly improved) but I suggest to shorten the discussion by at least one page, since presently is too long and dispersive. Maybe information of some other studies can be provided as table.

Some other comments.

Introduction
- it should be noted that tissues oxygen consumption is probably influenced by the induction of general and/or anesthesia, not only as results of adaptation to ischemia
- I suggest to quote that applications of oxymetry for the CNS are various and among them: during cardiac arrest for predicting ROSC (may quote Sanfilippo et al Resuscitation), during carotid surgery, and for the bone marrow perfusion during vascular surgery involving the descending thoracic aorta

Material and Methods
- the systolic BP allowed is quite high. Authors should explain why they chose to allow this degree of hypertension
- the authors do not provide a sample size calculation; therefore it is difficult to estimate the power of the study. This should be commented as an important limitation of the study

Results
- Data regarding the indication for surgery are missing
- I do not think that Figure 2 is really needed. What this single case adds to the manuscript and to
the analysis? Why was this case chosen (instead of another one specifically or randomly selected)?
- "Based on the observation…." What the authors want to show with this post hoc analysis? What is the hypothesis beyond it?

Discussion
- As per main comment, please shorten it.
- Reliability, sensibility, specificity etc can be determined only if one compares findings with a "gold standard" (which would be a SaO2 measured with arterial blood gas analysis). Therefore discussion on reliability/sensitivity should be softer and I would rather avoid these terms

Regards,

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 am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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