Author’s response to reviews

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

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Version: 1 Date: 20 Mar 2019

Author’s response to reviews:

March 20, 2019
Alberto Noto, PhD
BMC Anesthesiology

RE: Manuscript Revision
BANE-D-19-00078
Tourniquet-induced tissue hypoxia characterized by near-infrared spectroscopy during ankle surgery: an observational study

Dear Prof. Noto:

We are very grateful to you and the reviewers for taking time assessing our manuscript and providing us with the most valuable feedback. We appreciate the opportunity to revise our manuscript. We have done the revision based on the feedback. Any changes from the previous version are highlighted in red font. The point-to-point responses to the feedback are also highlighted in red font in this letter.

Again, we appreciate the opportunity and wish we have done a satisfactory revision based on the feedback.

Sincerely,

Lingzhong Meng
Dear Dr. Meng,

Your manuscript "Tourniquet-induced tissue hypoxia characterized by near-infrared spectroscopy during ankle surgery: an observational study" (BANE-D-19-00078) has been assessed by our reviewers. Based on these reports, and my own assessment as Editor, I am pleased to inform you that it is potentially acceptable for publication in BMC Anesthesiology, once you have carried out some essential revisions suggested by our reviewers.

Their reports, together with any other comments, are below. Please also take a moment to check our website at https://www.editorialmanager.com/bane/ for any additional comments that were saved as attachments.

Once you have made the necessary corrections, please submit a revised manuscript online at:

https://www.editorialmanager.com/bane/

If you have forgotten your password, please use the 'Send Login Details' link on the login page at https://www.editorialmanager.com/bane/. For security reasons, your password will be reset.

We request that a point-by-point response letter accompanies your revised manuscript. This letter must provide a detailed response to each reviewer/editorial point raised, describing what amendments have been made to the manuscript text and where these can be found (e.g. Methods section, line 12, page 5).

If you disagree with any comments raised, please provide a detailed rebuttal to help explain and justify your decision.

Please also ensure that your revised manuscript conforms to the journal style, which can be found at the Submission Guidelines on the journal homepage.

A decision will be made once we have received your revised manuscript, which we expect by 18 Mar 2019.

Please note that you will not be able to add, remove, or change the order of authors once the editor has accepted your manuscript for publication. Any proposed changes to the authorship must be requested during peer-review, and adhere to our criteria for authorship as outlined in BioMed Central's policies. To request a change in authorship, please download the 'Request for change in authorship form' which can be found here - http://www.biomedcentral.com/about/editorialpolicies#authorship. Please note that incomplete forms will be rejected. Your request will be taken into consideration by the editor, and you will be advised whether any changes will be permitted. Please be aware that we may investigate, or ask your institute to investigate, any unauthorized attempts to change authorship or discrepancies in authorship between the submitted and revised versions of your manuscript.

We look forward to receiving your revised manuscript and please do not hesitate to contact us if you have any questions.

Best wishes,

Alberto Noto, PhD
Dear Dr Meng,

I am pleased to inform you that your paper has been found acceptable for publication pending appropriate revision. Please find the comments of the reviewers at the end of this letter. The reviewers feel that some revision would be necessary before the paper could be considered for publication in the BMC Anesthesiology.

Response: Thank you very much. We are pleased by this decision and have done the revision per the reviewer’s feedback.

Regards

BMC Anesthesiology operates a policy of open peer review, which means that you will be able to see the names of the reviewers who provided the reports via the online peer review system. We encourage you to also view the reports there, via the action links on the left-hand side of the page, to see the names of the reviewers.

Reviewer reports:

Kenichi Takechi, M.D (Reviewer 1): Tourniquet-induced tissue hypoxia characterized by near-infrared spectroscopy during ankle surgery: an observational study by Gang Li et al. is a basic clinical study examining a tourniquet-induced tissue hypoxia using near-infrared spectroscopy. All section is well written and understandable. In the result section, they pointed out two-phase decrease of SstO2 (rapid phase and slow phase). Probable mechanism of this two-phase decrease of SstO2 should be mention in discussion section.

Response: We are very grateful to you for taking time assessing our manuscript and providing us the most needed feedback for improvement. We added a brief paragraph per your recommendation on page 11 (the 2nd paragraph).

Filippo Sanfilippo (Reviewer 2): 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.
Response: We are very grateful to you for taking time assessing our manuscript and providing us the most needed feedback for improvement. We agree with your assessment.

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.

Response: We revised the manuscript per your feedback and tried our best to improve the English. We shortened the discussion by more than one page in this revision. We tried to make the discussion more coherent and succinct per your recommendation.

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

Response: We made the revision per your recommendation. It reads as “In theory, the ischemic tissue would become hypoxic, and the hypoxia would become progressively worse, following the interruption of blood flow as long as the tissue continues to consume oxygen albeit maybe at a much slower rate as a result of the adaptive changes or other factors such as anesthesia” now in Introduction.

- 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

Response: Thank you. We cited this paper in this revision. We also added another 3 more references and removed some previous references in this revised manuscript.


Material and Methods

- The systolic BP allowed is quite high. Authors should explain why they chose to allow this degree of hypertension

Response: We agree with you. We mentioned “The systolic BP was kept below 200 mmHg during surgery” in methods because it is the rule set by the perioperative team in our hospital. However, we had studied a relatively healthy population and the intraoperative BP were within the ranges we would all agree. In order to avoid confusion, we removed this sentence in methods.

- 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

Response: We agree with your assessment. We added this sentence “As an exploratory observational study, power analysis was not performed before the study” on page 7, the first sentence in the paragraph of statistical analysis.
Results
- Data regarding the indication for surgery are missing

Response: Thank you. We added the information per your feedback on page 5 in patient inclusion and exclusion criteria. The surgery was performed in patients suffering from non-diabetic ankle injuries.

- 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)?

Response: We appreciate this feedback. However, this is a unique case among the patients being studied by showing a transient increase in cerebral oxygen saturation following the tourniquet deflation. It suggests that young and healthy patients may have different responses to tourniquet deflation. However, we are ready to remove it if this single patient does not make the contribution as we expect.

- "Based on the observation…." What the authors want to show with this post hoc analysis? What is the hypothesis beyond it?

Response: We agree with you. We have removed this paragraph and Figure 3 in this revision.

Discussion
- As per main comment, please shorten it.

Response: Thank you. We have significantly shortened the discussion and tried to make it more coherent and succinct.

- 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

Response: We agree with you. We have completely revised the sentence per your feedback. We removed words including sensibility and specificity.