Author's response to reviews

Title: Comparison of cerebral oximetry (INVOS) in cardiac surgery vs. vascular surgery patients. A prospective observational study

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Version: 3 Date: 6 April 2010

Author's response to reviews: see over
From: Menelaos Karanikolas, MD, MPH

To: the Editor-in-Chief, Journal of Cardiothoracic Surgery

RE: MS: 3821639523428699, Response to Reviewers

April 6, 2010

Dear Sir or Madam,

Thank you for forwarding to us the reviewer comments with regards to our manuscript entitled: Comparison of cerebral oximetry (INVOS) in cardiac surgery vs. vascular surgery patients. A prospective observational study

We carefully went over all issues raised by the reviewers, tried to address them as best as we could, and revised our manuscript accordingly. We have attached our responses to all reviewer comments, at the end of this letter. Each comment is addressed separately, and our responses are written using blue font, so that it is easier for you to recognize which part of the text comes from the reviewers, and what our responses are. All manuscript revisions are highlighted with red font, so that it is easier for the reviewers and the editor in Chief to identify these changes in the text. We also used the “track changes: feature to make more complex changes easier to identify.

We hope that our responses and manuscript revision will be satisfactory to you, the Editor-in-Chief and the reviewers, so that our manuscript can be accepted for publication in the “Journal of Cardiothoracic Surgery”.

Sincerely,

Menelaos Karanikolas, MD, MPH
REVIEWER 1 – Panagiotis Dedeilias

Reviewer's report:

This is a very valuable prospective non-randomized study that proves the usefulness of baseline cerebral oximetry values measurement in cardiac and vascular surgery patients. Although there are statistically significant differences among the two patient cohorts the basic meaning of this well documented and presented paper is that cerebral activity has to be followed during major surgical procedures that involve cerebral circulation.

The study has been well designed and statistically analysed and will attract the interest of other specialties such as anaesthetists or intensive care specialists and so a publication is worth it.

We thank reviewer 1 for his positive comments. We certainly agree with the reviewer’s opinion that cerebral activity has to be monitored during major procedures involving the cerebral circulation; however this particular observational study was not designed to evaluate this hypothesis.

As Reviewer 1 does not suggest any revisions of our manuscript, we did not make any manuscript changes based on his comments.
Reviewer's report:

MAJOR COMPULSORY REVISION

The authors do not explain which is the kind of heart surgery the patients enrolled in the study underwent. If it was coronary surgery, they do not specify whether it was ON-PUMP or OFF-PUMP, the Cardio-pulmonary by-pass (CPB) times, the temperature and the cardioplegia.

This study included 100 patients undergoing cardiac surgery. Of those, 78 patients had CABG surgery (42 patients with CPB, 36 patients without CPB), while 22 patients had valve replacement surgery. This information has been added in the 4th paragraph of the methods section, in page 6.

Because this study was conducted to evaluate and present baseline INVOS data, we do not think that data regarding CPB times, intraoperative temperature management and use of cardioplegia are relevant. We think that adding this information would make the manuscript longer and more complicated, without adding meaningful information relevant to baseline INVOS values.

In addition, they should also take into account the transitory heart failure caused by the dislocation of the heart generated by the grafts on the posterior vessels in case of without CPB procedures.

Similarly, we respectfully disagree with the above comment. We think that, although the above reviewer comment is correct, this issue is beyond the scope of this particular study, which is evaluating baseline preoperative INVOS values.

The endarterectomy was performed with shunt?

No, all carotid endarterectomies were performed without using a shunt. This information has been added in the 4th paragraph of the Methods section, in page 6.

MINOR ESSENTIAL REVISION
I would suggest that the authors focus on the frequency of the neurological events linked to the baseline INVOS values rather than on the differences of such values among patients affected by diabetes, ipercholesterolemia and smokers. This also considering the fact that the mechanisms underlying these differences have not been clarified yet.

Reviewer 2 is absolutely correct, and we agree with him that the frequency of neurological events linked to baseline INVOS values is of great importance. However, this particular study was conducted to evaluate baseline INVOS data in two challenging patient populations, but was NOT designed to correlate these baseline values with actual outcome. Of course, this issue is extremely important, definitely deserves careful evaluation, and we hope we can conduct such a study in the near future. However, we regret that at the present time we do not have data to answer this extremely important question.

DISCRETIONARY REVISION

In my opinion is not important to precise: "The use of INVOS has been reported to help detect aortic cannula displacement.

In response to the above reviewer comment, the proposed sentence has been incorporated in the manuscript, in the 3rd paragraph of the introduction, on page 4.
REVIEWER 3 – Timothy Sakellaridis

Reviewer's report:

I read with interest your article about monitoring cerebral oximetry (INVOS) during cardiac surgery. Of course your article states only the baseline, and for monitoring cerebral oxymetry anesthesiologists, cardiac surgeons and intensive care doctors have NIRS that it is non-invasive. As you stated, perhaps is a promising neuro-monitoring technology and we look forward to read the variation of INVOS during cardiac surgery in the future.

We thank reviewer 3 for the above positive comments. We agree that INVOS is a promising neuro-monitoring technology, and we hope we can conduct further studies to evaluate the variation of INVOS during cardiac surgery in the future.

I feel that it is essential that this manuscript must be seen by an expert statistician if not but I do not feel adequately qualified to assess the statistics. As the authors state they have used statistical tools (spss etc.

In response to the above concern regarding statistics: we feel very confident about the statistics methods we used and the statistical data analysis we conducted. In fact, one of the authors (MK) has a Master of Public Health (MPH) degree from St Louis University (in the United States), with a very strong background in medical statistics. Furthermore, in order to be extra careful and avoid any pitfalls, we also sought the advice of a professional statistician, who concurred with our statistical methods and agreed with our results and conclusions.

->Major Compulsory Revisions

None

->Minor Essential Revisions

If the data and the statistics are not be consulted by a statistician, then one must be consulted.

As stated in our previous comment, we consulted a professional statistician before even submitting this manuscript for consideration, and we feel very confident that our statistical analysis, results and conclusions are sound.
Few spelling mistakes must be corrected.

In response to the above comment, we carefully read the entire manuscript again, and also used the computer-provided spell checking feature in an attempt to minimize spelling and grammar errors.

->Discretionary Revisions

Need some language correction

In response: As stated above, we did our best to improve our language, and we also tried to identify expressions that could be vague or ambiguous, but could not find any. All spelling and grammar errors we could find have been corrected.