Author's response to reviews

Title: Intensified thermal management for patients undergoing transcatheter aortic valve implantation (TAVI)

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Version: 2 Date: 9 September 2011

Author's response to reviews: see over
Reviewer's report
Title: Intensified thermal management for patients undergoing transcatheter aortic valve implantation (TAVI)

Version: 1 Date: 22 July 2011
Reviewer: Stefan Schumann

Reviewer's report:

In their study, Brandes et al. investigate the effects of additional patient prewarming with forced-air on patients’ core temperature during and after transcatheter aortic valve implantation via transapical approach. Brandes et al. demonstrate impressively the benefits of the intensified warming conditions compared to the standard procedure.

Major Compulsory Revisions

1. Comparisson of values in table 1 and in the text of the Results section reveals that there are scaling-problems in figure 1.
   Values in the table do not match the values indicated in the Table:
   Initial temperatures are given as about 36.0°C in table 1 and indicate about 36.2°C in figure 1.
   In table 1, as temperature for STM after procedure 35.6°C is given and 35.5°C at ICU admission. In figure 1 the point marking STM after procedure (intraoperative -120 min) is however positioned lower than the point making STM at ICU admission (postoperative -0 min). Temperature ITM at ICU arrival is given as 36.4°C in table 1 and is about 36.2°C in figure 1. Temperature ITM at end of procedure and at ICU arrival are given as 36.4°C. However, both values (intraoperative -120 min and postoperative -0 min) differ clearly in figure 1.
   Furthermore, the time-axes of the intraoperative and the postoperative part are slightly shifted.
   Correct, the values in the table and in the figure have been corrected accordingly.

2. In table 1 the values for SAPS II score differ by 40% and a p-value indicating the difference to be non-significant is given. Applying Student’s t-test on mean, standard-deviations and n indicates however a significant difference. Please check values. If however significant difference remains the possible influences of difference between both groups need to be discussed.
   Thank you very much for this comment. The SAPS II score values were not normally distributed in the ITM group, therefore Student’s t-test could not be used.
   We used the EURO score and the SAPS II score to describe the severity of the patients’ disease before the procedure and for ICU admission. The EURO score is advantageous to characterize a patient’s perioperative risk, the SAPS II score is better in describing the severity of disease of patients admitted to an ICU. The problem with the SAPS II score is the fact that a GSC-value without sedation is used. More STM-patients arrived intubated and sedated at the ICU, but not because they were more severely ill, but because they were hypothermic and therefore intubated. To clarify this matter we omitted the SAPS II score values.
Minor Essential Revisions

3. Author AB is missing on top of title page.

This error is due to the online submission and has been removed.

4. Abstract:

- p-value for core temperature is given as “<0.001”, in table 1 it is given as “=0.001”,
- p-value for ventilation time is given as “<0.05”, in table 1 it is given as “=0.001”, please check and indicate if you mean “<0.001” within table 1. For better consistency “p<0.001” should be given in table 1 for “Extubation in OR”.

Correct, for better consistency all values are now given as exact values.

5. Abstract and Introduction

It is not completely clear in which time range the additional prewarming was applied. In the Abstract it reads “additional prewarming … in the pre-operative holding area”, in the Methods section it reads was „…was begun in the pre-operative holding area“. Please clarify when additional prewarming was stopped and consider indicating the time range of the additional prewarming in figure 1.

The additional prewarming was started before induction of anesthesia and used until scrubbing started. This information has been added und the part of the methods section has been restructured to clarify our procedure.

6. Results and Discussion begins with the word „Text“ - please check.

This error is due to the online submission and has been removed.

7. Page 6 last line, “for this subsection” appears to not to belong to the text.

This error is due to the online submission and has been removed.

8. Table 1: Consider including respective numbers of patients to table 1.

This additional information has been added to the table.

9. “Temperature afterdrop” for ITM might be 0.16 instead of 1.6, otherwise the IQR would not include the median value, please check.

This is a typing error, the correct value has been added.
Discretionary Revisions

10. I would like to suggest indicating specific points in time, e.g. arrival in OR, beginning scrubbing, end of scrubbing etc. in figure 1.

Thank you very much for this comment, which brings up an important point. For better understanding we added a temperature at a specific point in time to figure 1: „before induction of anesthesia“. We used „induction of anesthesia“ as point „T_0“. Because the duration of induction of anesthesia was different for every patient, the point „beginn scrubbing“ and „end of scrubbing“ is different for every patient. Therefore there is not a single specific point in time for „beginn scrubbing“ or „end of scrubbing“.

Level of interest: An article of importance in its field

Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:
I declare that I have no competing interests
Reviewer's report
Title: Intensified thermal management for patients undergoing transcatheter aortic valve implantation (TAVI)

Version: 1 Date: 29 July 2011
Reviewer: Marina Jamnicki Abegg

Reviewer's report:
As the authors have mentioned in their paper, thermal management is an essential part of perioperative patient care. They propose an astonishingly simple concept of lessening heat loss by prewarming. The study is well designed and clear in its outcome. Therefore I recommend it for publication without major revisions. I do have some minor points, however, that need to be addressed.

Minor Essential Revisions
Methods:

1. End of first paragraph:”... in ITM, air warming was begun in the pre-operative holding area...” It is not really clear whether the prewarming was done on awake or already intubated patients. Please specify. The same comment applies to the first temperature measurement.

Correct, this part of the methods section has caused some problems for both reviewers. Therefore this part of the methods section has been clarified and restructured.

2. Last paragraph: What do you mean by “The results of the first nineteen patients with the standard method were considered clinically inadequate”? I guess it means the thermal management was inadequate, not the handling according to study protocol. Please clarify.

Correct, the thermal management of the first patients was inadequate and therefore changed. This has been clarified in the manuscript.

Results:
3. Last paragraph: There is a discrepancy in your results: 2 out of 20 patients (ITM) needed ventilatory support for zero hours? Where they extubated immediately upon arrival in the ICU or where they breathing spontaneously through the tube? Please explain.

Thank you very much for your comment. The two ITM-patients that needed ventilatory support on the ICU were ventilated for 1.2 hours (pat.1), and for 27.9 hours (pat. 2). However, the median duration of ventilatory support for all 20 ITM-patients was 0 minutes and the IQR was 0-0 minutes.

4. The last sentence is redundant. If 13 out of 19 patients cannot be extubated, then 6 can. There is no need to mention it separately.

Correct, the redundancy has been removed.

5. The very last sentence “for this subsection” does not make sense in the context.
This error is due to the online submission and has been removed.

Table 1:

6. Same discrepancy as mentioned under results (Extubation in OR: 18 patients, ventilatory assist: 0 hours).

Correct, please see answer to point 3.

7. Why did the body temperature of the patients with STM drop continuously during surgery? One would expect that after an initial drop in temperature, and once warming is started, temperature can at least be maintained. I can only think of two explanations: Either you did not warm the patients as described in the methods section or “Intraoperative” does not refer to time during surgery but comprises the whole time the patients spent in the OR. This point should be clarified and/or addressed in the discussion.

This is a typical clinical observation we see in many patients. Even if warming is started at the beginning of the operation a temperature drop can be seen due to redistribution of heat from the core to the periphery. The core temperature starts to rise after this process has ended and this takes typically longer then 80 min. We have added this important information to the discussion.

Discussion:

8. The discussion is the weakest section of the paper. It does not focus on the primary findings of the study, i.e. the efficacy of prewarming vs no prewarming, but elaborates on different warming methods in different surgical procedures. Explaining the time course of heat loss during surgery and why preventing heat loss from the beginning on, as done with prewarming, is superior, should be included into the discussion.

Thank you very much for this comment. We have now extended the discussion and are focussing more on the primary findings of the study and the time course of the intraoperative temperature and the explanation of it.

Figure:
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:
I declare that I have no competing interests