Reviewer's report

Title: Retrospective analysis of pre- and intraoperative risk factors for readmission to the intensive care unit after fast track cardiac surgery

Version: 1 Date: 27 August 2012

Reviewer: Ehsan Natour

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Review

'Retrospective analysis of pre- and intraoperative risk factors for readmission to the intensive care unit after fast track cardiac surgery'

Arndt H Kiessling, Patrick Hunecke, Christian Reyher, Tobias Bingold, Andreas Zierer and Anton Moritz Journal of Cardiothoracic Surgery Research article

1. Is the question posed by the authors new and well defined?
   Yes

2. Are the methods appropriate and well described, and are sufficient details provided to replicate the work?
   Yes

3. Are the data sound and well controlled?
   Yes

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   In general it does. However, Table 1,2, and 3 lack a description of abbreviations. If abbreviations are used in a table, all abbreviations should be explained underneath each table. Our advise is to do so, because it is more reader-friendly. The list of abbreviations at the end of the manuscript is good, but incomplete, because it does not contain the abbreviations from the tables. In Table 1 you should explain which euroscore was used (I, logistic or additive, or II). In the methods section you should describe what surgery is considered urgent (hemodynamic instability or surgery required on the same day or surgery during the same hospitalization etc.).

5. Are the discussion and conclusions well balanced and adequately supported by the data?
   The conclusions are adequately supported by the data, but not well written/formulated. We advise the authors to rewrite their conclusion. The key here is to point out your most important findings and to communicate them adequately to the reader. Your most important findings are: ASA class >3, NYHA class >III and an operation duration >267 minutes are independent predictors of fast-track protocol failure. Therefore, the parameters should be used more strictly
in “fast-track” patient selection and “fast-track” termination.

6. Do the title and abstract accurately convey what has been found?

The title conveys what the paper is about, not what has been found. However we do think the title is correct. In our opinion the authors can remove “retrospective analysis of...”. This addition is distracting and unnecessary. Interested readers can appreciate the retrospective design of the study from the methods section or from the abstract. The abstract should be optimized: see point 7.

7. Is the writing acceptable?

It is acceptable. However the background/introduction is rather difficult to read. Sentences are often unclear and too long and have to be read twice to fully understand them. We advise the reader to take another look at this. We propose some modifications, such as …

-Abstract (background): …and predictors for re-admission to the ICU after a …
-Abstract (methods): you should state here that you performed uni- and multivariate analysis to identify independent predictors of re-admission to the ICU.
-Abstract (results): you should state how many patients could not be transferred to an IMC unit on the day of surgery and how many had to be re-admitted to the ICU after the first operative day.
-Abstract (results): it should be mean hospital stay (in days) and mean transfusion rate (in%).
-Abstract (results): you should clarify what is defined as a “major postoperative event”.
-Abstract (conclusion): The failure of a fast-track patient management concept is associated with a high loss of patient outcome; this sentence is incorrect. What you mean is: Re-admission to the ICU (or failure to transfer patients to the IMCU) is associated with a worse patient outcome. If you want to use the term: “failure of the fast-track protocol”, you should define somewhere what you mean by this; for example: failure of the fast-track protocol was defined as re-admission to the ICU after the first operative day or failure to transfer the patient to an IMCU on the day of surgery.
-Abstract (conclusion): The last sentence of the abstract is not very strong. What you mean is: Pre-operative ASA class >3, preoperative NYHA class >III, and an operation time >267 minutes independently predict failure of the fast-track protocol.
-Background: ...triggered by hypothermia and hemodilution as a consequence of the extracorporeal circulation …
-Background: ...more susceptible to new onset ischemia…
-Background: An additional aspect of sedated patient observation was … (instead of; a further aspect for the close observation of sedated patients was…)
-Background: these serious complications (instead of; these complications of serious concern)
- Background: complications cannot be ruled out, however they can become less likely
- Background: more importantly, it was anesthesiological … (instead of; but not least, it was anesthesiological…)
- Background: Thus, the time of extubation was already established intraoperatively (this sentence is stronger as a separate sentence)
- Background: …were published (instead of; were already being published)
- Background: Due to the growing pressure … (instead of; it was only the growing pressure…) The sentence that follows is too long and unclear. You should begin by stating: Interest in fast-track protocols was rekindled, because … / due to …
- Background: one possibility is … (instead of one possibility consists in …)
- Background: this requires efficient surgical planning … (instead of; this requires an ideal logistics system for designing suitable surgical procedures)
- Background: a meticulous preoperative assessment .. (instead of; an exact preoperative assessment)
- Results: avoid the use of “n = …” in your text
- Results: you should state how many patients could not be transferred to an IMC unit on the day of surgery and how many had to be re-admitted to the ICU after the first operative day. This CAN be done by using “(n = …)”
- Results: ..showed sometimes markedly significant differences… This sentence is unclear, especially the use of the word “sometimes”. Please clarify.

- Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)
  None
- Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
  See the above mentioned points (under 5,6 and 7)
- Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)
  See the above mentioned points (under 5,6 and 7)

Once you have done this, there are also some questions for you to answer, including one that asks your advice on publication.

What next?

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- Accept after minor essential revisions (which the authors can be trusted to make)

Level of interest
- An article of importance in its field

Quality of written English

Please indicate the quality of language in the manuscript:

- Needs some language corrections before being published

Statistical review

Is it essential that this manuscript is seen by an expert statistician? If so, please give your reasons in your report.

- No, the manuscript does not need to be seen by a statistician.

However, you should explain in the methods section what type of stepwise multivariate models you used (forward/backward etc). At what level did you set the cut-off for entry and removal (0.05 ?). How did you test the goodness-of-fit of your final model? In addition, you need to specify whether age and gender were included in the multivariate model irrespective of the results of univariate analysis. You identify an operation time >267 minutes as an independent predictor of failure of the fast-track protocol. However, this is the mean value for the entire group of failures. If you want to identify an optimal cut-off value for the operation time that predicts fast-track protocol failure (with the highest sensitivity and specificity) you will need to construct a ROC (receiver operating characteristics curve). We advise you to do so and (if necessary) to ask the help of a statistician.

Declaration of competing interests

I declare that I have no competing interests

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

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