Reviewer's report

Title: Preoperative levels of Hemoglobin and B-Type Natriuretic Peptide are associated with postoperative morbidity in heart surgery

Version: 1 Date: 24 March 2012

Reviewer: Daniel Bolliger

Reviewer's report:

Hernandez et al. studied the association between different preoperative laboratory parameters with outcome after cardiac surgery. As the classical stratification scores such as EuroSCORE or STS risk model are limited are of limited value, this is an important possibility to improve patient care in cardiac surgery.

However, this paper has several major limitations:

- Definitions are not clear and should be inserted. Most importantly, the authors’ definition for diabetes mellitus (IDDM or NIDDM or only treated DM with insulin and/or oral hypoglycemics), postoperative acute myocardial infarction (how was AMI diagnosed in the postoperative period?), death (only death due to cardiac causes or all-cause death?), re-hospitalization (every hospitalization or only hospitalization due to cardiac causes?), obesity etc. In the Statistics section, the authors state that all outcomes were prespecified and a uniform definition was applied. Please indicate these definitions.

- Statistics: This reviewer thinks that too many variables were inserted into the regression model. For regression models, not more than 1 variable per 10 to 15 events should be used. As the exact number of events is unclear in this manuscript, this reviewer has some restrictions regarding the regression model.

- Results section: Please indicate the reasons for patient exclusion.

- Results section: Please do not use 60 +/- 11.21 years, just use 60 +/- 11 years. SD should not use more numbers after the comma than the original numbers (e.g. in this example patient age in years). Please describe the patient characteristics only in the text or in tables to avoid duplicity.

- The Results section should be completely rewritten. Please focus on the important results that help you to prove your hypothesis.

- Not normally distributed data as ICU or hospital stay should be presented as median and range. The use of mean and SD is questionable. Do not use 1.99 days but 2 days. For more explanations, see my comments above.

- Outcomes should be presented in Tables. For example, the number of deaths during hospitalization and follow-up is unclear.

- Is atrial fibrillation an outcome in your study? Then you need to define it in the Methods section.

- Discussion: Please refer with your first sentence to your study hypothesis. AF
was not used in your study hypothesis. You should therefore not discuss AF in the second sentence.

- In the discussion, you should focus more on your study hypothesis. Try to compare it with other studies investigating similar questions. For example, what is the value of BNP in patients undergoing cardiac surgery in other studies? There is no reference to this topic in your manuscript. The same is true for preoperative hemoglobin value.

This reviewer recognizes the work of the authors and the value of their data. However, given all these limitations mentioned above, I cannot support the publication of this manuscript at the moment. Additionally, I advise the authors to look for the help of a statistical advisor.

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

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.