Reviewer’s report

Title: Usefulness of N-terminal pro-B-type natriuretic peptide in patients admitted to the intensive care unit: a multicenter prospective observational study

Version: 1 Date: 23 September 2013

Reviewer: Andrew Bersten

Reviewer’s report:

This is a revised manuscript, and while some of the issues are addressed in the new manuscript there are many which are not. Some of these are addressed in the response to the reviewer, but the point is they should also be addressed in the manuscript and they may lead to a change in discussion and or conclusion.

Major comments

1. Aim – the stated aim of the study (Abstract, L3) was to determine whether NTpro-BNP was predictive of ICU mortality. Firstly, I think the authors need to decide which analysis they perform will best answer this question; they use both logistic regression and ROC AUC analysis. In logistic regression NTpro-BNP is statistically significant along with SAPS 3 score. No data are given for SAPS 3 alone; it would be interesting to know if NTpro-BNP added to the strength of the relationship provided by SAPS 3 as we already collect SAPS 3 data and the question is whether adding a biomarker yields additional benefit. In the Discussion the 1st paragraph states that NTpro-BNP is a significant prognostic factor without stating which analysis they use to support this comment. The 3rd paragraph then starts talking about ROC AUC analysis. NTpro-BNP has an AUC of 0.67 which is very weak and of no interest to clinicians. I asked the authors to look at whether NTpro-BNP added to the SAPS 3 AUC of 0.83 as if this was the case then they could argue additional benefit with more confidence than the logistic regression. The data are supplied in the response to the reviewer but not in the manuscript and are incomplete. While presenting the combined AUC the authors need to test whether it is better than the AUC for SAPS 3 alone. Based on the raw AUCs provided I doubt this is the case. If they are not different then the whole thrust of the paper must change as there is no argument for additional prognostic power. Whatever the result these additional analyses must be presented in the final manuscript and not just for the reviewer. Ina addition the data must be discussed and will result in major changes to the conclusion and discussion as the AUC increment is minimal and likely no different to SAPS 3 alone.

2. Abstract – no ROC data are provided in the Abstract and they need to be as this is a better way of examining the aim than logistic regression in my view

3. Introduction – suggested language changes for the last 4 lines are “Moreover, it is not clear in which conditions NT-pro-BNP is elevated. Thus, by using a large cohort we aimed to assess the prognostic value …..and analyzed…..”
4. Methods – make clear how and why you address the aim (see above)
5. SAPS – please check this is often misspelt as “SPAS”
6. Discussion – this needs to be rewritten depending upon the manuscript response to point 1.

**Level of interest:** An article of limited interest

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

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

**Declaration of competing interests:**

'I declare that I have no competing interests'