Reviewer’s report

Title: KEY COMPONENTS OF THE DELIRIUM SYNDROME AND MORTALITY: GREATER IMPACT OF ACUTE CHANGE AND DISORGANISED THINKING IN A PROSPECTIVE COHORT STUDY

Version: 1 Date: 10 Nov 2017

Reviewer: Meera Agar

Reviewer's report:

This is an important study which helps take the field forward. My comments are mainly to improve clarity to help interpret the findings.

In methods section (including in the respective section of abstract) clarify the time point up until mortality data was collected (was this censored? i.e. those alive at study end and how long was the maximal followup?). There are several versions of the CAM, the version used should be clear in abstract and methods as the type of delirium symptoms captured does vary depending on the CAM choice (the fact it was short CAM only became clear late in discussion). Is the modified APACHE II without blood gas validated - the reference is to the original APACHE II?

Line 103 data analysis (methods) - The a priori variables which were deemed the relevant confounders should be specified (and the rationale for why they are related to mortality in delirium) - were they all the covariates listed at line 89-94 or selected?

Was inter-rater reliability established for the raters?

Results

- Can you confirm the full cohort (SSD, FSD, no delirium) contributed to the analysis of individual CAM items (line 153)? This analysis isn't outlined in methods. What was the spread of presence of each CAM items (esp. acute change and disorganised thinking) in FSD and SSD groups? Could it be the FSD group had these items more commonly and this mediated the association - was this accounted for in the analysis?

- As the CAM was completed anytime within first 72 hours it would be useful to know what % were completed in each 24 hour block - CAM at 72 hours could pick up incident delirium rather than prevalent delirium - do the authors think this has implications for findings?
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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