Reviewer’s report

Title: Hypertension, mitral valve disease, atrial fibrillation and low education level predict delirium and worst outcome after cardiac surgery in older adults.

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Reviewer: Ary Serpa Neto

Reviewer’s report:

The authors present a study focusing on the description of risk factors for delirium after cardiac surgery in elderly patients. It is a prospective observational single centre study performed in 173 patients with age above 60 years. The authors describe an incidence of delirium of 34.1% and that education level, hypertension and mitral valve disease are independent predisposing factors for delirium. They conclude that in older adult patients submitted to cardiac surgery delirium is a frequent complication and is associated with worst outcome. Independent risk factors for delirium included low education level, hypertension, mitral valve disease, and atrial fibrillation after cardiac surgery. The study is well conducted and the authors should be acknowledge for ir. However, I have some concerns:

ABSTRACT

1. There is no objective described. I suggest correcting it

2. The authors describe that the primary outcome is a composite one of death, infection and perioperative MI. However, it appears that the study is about delirium, and I think that development of delirium is their primary outcome.

3. What the authors want to say with "atrial fibrillation after surgery represented the triggering factor"? I think that atrial fibrillation is a risk factor as the others described

INTRODUCTION

1. Needs to be improved, with more information and contextualization. For example, there are a lot of publications addressing delirium after cardiac surgery that were not included and discussed.

METHODS

1. I suggest removing the number of patients from this section, these should be placed on Results and in a Flowchart of inclusion

2. Please describe better your inclusion and exclusion criteria.
3. Which type of professional applied the CAM? Psychiatrist? Neurologist? Other? This should be addressed.

4. Also, who confirmed the diagnosis of postoperative delirium by DSM-IV?

5. The p value < 0.1 used to include variables in the multivariable were tested how? Univariable logistic regression? Simple bivariate comparison? This should be explained.

6. Which variables were considered in the first model (17 as stated). This should be described.

RESULTS

1. The results of table 3 are the core of the paper and should be described in the text.

2. How did the authors split the factors in "risk factor" and "triggering factors"? This is not usual.


4. Please include all other variables considered in the final multivariable models (Table 3 and 5). Avoid selective reporting. Prognostic factors were considered in the model for the composite outcome?

5. How changes in VFT and MMSE were assessed? This should be described in the Methods since this is important for the study and should consider special methods to avoid regression to the mean.

6. I suggest a Kaplan-Meier stratified by the presence or not of delirium and with mortality (or composite) as outcome.

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:

Needs some language corrections before being published

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None.

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