Author’s response to reviews

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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Author’s response to reviews:

Editor Comments:

The authors addressed the editor’s comment overall. However, they should also include in the discussion/limitation as appropriate - and not only in the response to reviewer’s letter:

1) the explanation of why data are so old

Response: Ok. Done. We included it in the limitations section.

2) the possible role of mitral valve surgery in predisposing to delirium

Response: It was done in the first version after reviewer’s suggestions. Now it can be found in pages 11-12. Done.

Reviewer reports:

alessandra marcone (Reviewer 1): I have some observations:

1) In the new version of manuscript the AAs confirm that the low education level alone can represent a risk factor for delirium, even in the absence of cognitive decline.
In my previous review I asked the AAs for their interpretation of this finding, but I do not think it was included in the new paper. Do the authors believe that the low cognitive reserve, likely associated with low education, could represent a factor of vulnerability of the brain and a risk factor for neurological disorders such as delirium or dementia?

Response: We performed some modifications in the manuscript to make it clearer to readers adopting reviewer’s suggestions.

2) Has the title been modified? If so, why?

I believe that the presence in the title of only low education as a risk factor for delirium is too "strong" and also incomplete. The previous title was better.

Response: We changed because we believed that was too long. We accept and we agree with the reviewer and changed back to the initial title: Hypertension, mitral valve disease, atrial fibrillation and low education level predict delirium and worst outcome after cardiac surgery in older adults.

3) Methods: Pre-operative phase and follow-up phase (12-18 months): did the AAs assess the functional status of patients (e.g. with BADL and IADL scale) (Basic and Instrumental activities of daily living) and behavioral and neuropsychiatric profile (e.g. with NPI scale) (Neuropsychiatric Inventory) to exclude a dementia? I advise that the AAs would include in the paper some information.

Response: We did not assess functional status and/or neuropsychiatric profile of patients to exclude dementia. In this study, previous diagnosis of dementia represented an exclusion criteria when established by specialist in a referral letter.

Ary Serpa Neto, MD, MSc, PhD (Reviewer 2): Most of my comments were properly addressed. However, there are still some issues:

1. The authors still present the number of patients and the period of recruitment in the Methods. As stated in my previous comments, I dont think this is a good approach. For example, CONSORT guideline recommends the inclusion of these informations in the Results only. If the authors prefer to report it in the Methods I kindly ask a good justification.

Response: I’m afraid that we disagree with the reviewer. CONSORT guidelines are for randomized clinical trials and this is not the case for the present study. This is an observational cohort study and the correct guidelines to be followed is STROBE that can be found here: https://www.strobe-statement.org/fileadmin/Strobe/uploads/checklists/STROBE_checklist_v4_cohort.pdf

In STROBE the information about sources and methods of selection of participants are generally report in Methods section, sub-item Participants.
2. The diagnosis of delirium by DSM-IV should be done by a psychiatrist or neurologist, as described in the DSM-IV description and done in other studies. I suggest including an explanation that this was done by a physician but not a neurologist or psychiatrist.

Response: We included this issue in the study limitation section.