OPEN PEER REVIEW

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Multidisciplinary Cardiovascular Annals
Article DOI: 10.5812/mca.111442
Published in: Multidisciplinary Cardiovascular Annals: In Press(In Press); e111442

Peer Review Report for "Comparison of the Effects of Hypothermia and Normothermia on Cognitive Functions After Coronary Artery Bypass Surgery"

Author(s): Mohsen Ziyaeifard, Alireza Ghavidel, Abbas Moradi, Mostafa Fatahi, AmirHosein Salehzadeh, Hamid Heidarzadeh

Review Timeline:

Submit Date: 21 Nov 2020
Revised Date: 6 Feb 2021
Accepted Date: 15 Mar 2021

Revision (0)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

Rasoul Azarfarin: Reviewer | **Revision** (0) — 6 Dec 2020

Dear AE,
The study has been done on an interesting issue, however some considerations are needed to be done by the authors:
-There are numerous typing and grammatical errors, please do English edit.
- Please remove irrelevant text from Abstract (firs sentence) ans Introduction (first paragraph).
- Please add values of hypothermia and normothermia and also score of Cognitive in 2-4 days of ICU in Abstract.
- As your study is an observational one, please state that the surgeon ordered the hypothermia/ normothermia in the studied patients.
Thanks

REFEREE: Reviewer | **Revision** (0) — 7 Dec 2020

Dear AE,
In this study authors assessed: Comparison of hypothermia and normothermia on cognitive function after coronary artery bypass surgery

- In the background section, there is no need to explain the history of cardiac surgery and it is appropriate to give a complete and brief explanation of the benefits and complications of hypothermia in cardiac surgery, especially in causing cognitive disorders.
- In this study, the method of determining the sample size is not mentioned, and also the method of distributing patients in the two groups is not mentioned.
- In the inclusion criteria, the age range of 18 to 75 years was mentioned that according to this age range, we expect the effect of confounding variables, and in Table 1, the average age of 60 years was finally in both groups.
- In this study, the duration of cardiac surgery and the duration of pump and clamp, MAP changes during surgery, and several other variables during surgery are not mentioned that can be effective in causing cognitive disorders, and it was appropriate to refer to Table 1, which mentioned only to the level of education and medical history, in this study, one variable is examined in a pure form and no attention is paid to other confounding variables.
- Correct the grammar of this text

Thanks.

REFEREE: Associate Editor | **Revision** (0) 8 Dec 2020

Dear EIC,

According to the reviewers' comments, the manuscript needs some revision.

Sincerely yours;

Alireza Alizadeh Ghavidel: EIC | **Revision** (0) 9 Dec 2020

Dear Authors,

Thank you for submitting your valuable manuscript. I would like to inform you that it needs some revision according to our expert reviewers' comments.

Warm regards

OPEN PEER REVIEW

Revision (1)

Reply to Reviewers

Ideally, the reviewing process can significantly improve the submitted manuscripts by allowing the authors to take into account the advice of reviewers. Author(s) must reply to all reviewers' comments in a separate Word file, point by point. A "**Reply to Reviewers**" document is submitted along with revised manuscript during submission of revised files, summarizing the changes that the authors made in response to the reviewers' comments. The responses to reviewers' comments specifies how the authors addressed each comment the reviewers made.

You can read the authors' responses to the reviewers' comments in the next page.

Correction	Comment	Comment and Correction Reviewer
Cognitive impairment is among common complications in patients undergoing CABG. Deep hypothermia is significantly more effective in reducing the risk of cognitive impairment than normothermia and mild hypothermia. However, other factors, such as the duration of cardiopulmonary bypass (CPB) contribute to the severity of cognitive impairment [1]. Kiabi et al, stated that cognitive deficits have a direct relationship with the low mean arterial pressure and an increase in the duration of CPB [2]. **(Firs paragraph of the background)**	In the back ground section, there is no need to explain the history of cardiac surgery and it is appropriate to give a complete and brief explanation of the beneficial and complications of hypothermia in cardiac surgery, especially in causing cognitive disorders.	Reviewer 1
After performing quota sampling to classify the two variables of age and sex, 65 people were included in the study in each of the hypothermic and hyperthermic groups. **(The eighth line of the study method)**	In this study the method of determining the sample size is not mentioned and also the method of distributing patients in the two groups is not mentioned.	
The questionnaire used in the study to assess cognitive disorders in adults ranging in age from 18 to 75 years. Because the youngest age in the samples was 55 years old. The results also showed that the mean of the samples in the two groups did not differ significantly. Therefore, it can be claimed that the two groups were homogeneous and the confounding variable was controlled due to the age homogeneity of the two groups.	In the inclusion criteria , the age range of 18 to 75 years was mentioned that according to this age range, we expect the effect of confounding variables, and in Table 1, the average age of 60 years was finally in both groups.	
In Table 1, all the requested variables are added.	In this study, the duration of cardiac surgery and the duration of pump and clamp, MAP changes during surgery and several other variables during surgery are not mentioned that can be effective in causing cognitive disorders, and it was appropriate to refer to Table 1, which mentioned only to the level of education and medical history, in this study, one variable is examined in a pure form and no attention is paid to other confounding variables.	
The text of the article was edited by native	There are numerous typing and grammatical errors, please do English edit.	Reviewer 2
Background: Cognitive impairment is among the most prevalent complications in patients undergoing CABG. Selection of the proper temperature is one of the main moderating factors in cognitive impairment following CABG. Today, heart surgery is done using the two methods of hypothermia and normothermia. However, there is no consensus over the method with the least side effects. **(Firs paragraph of the abstract)**	Please remove irrelevant text from Abstract (firs sentence) ans Introduction (first paragraph).	
However, there was a significant relationship between the two groups from the second ($p = 0.003$), third ($p = 0.000$) and the fourth day ($p = 0.023$) after the surgery. In the normothermic group, on the second, as well as third and fourth days 14 and 9 patients suffered from cognitive impairment, respectively. Besides, in the hypothermic group, on the second, third, and fourth days after surgery,	Please add values of hypothermia and normothermia and also score of Cognitive in 2-4 days of ICU in Abstract.	

28, 30, and 23 patients suffered from cognitive impairment, respectively. However, there was no significant relationship between the two groups on the fifth and sixth days after the surgery (p = 0.079). **)The fifth line of the results section is abstract(**		
All surgeries were performed by two surgeons. **)The sixteenth line of the study method section(**	As your study is an observational one, please state that the surgeon ordered the hypothermia/ normothermia in the studied patients.	

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Revision (1)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

Rasoul Azarfarin: Associate Editor | **Revision** (1) 17 Feb 2021

Dear EIC,
The authors corrected the requested items and the manuscript could be accepted in this step.
Sincerely yours;

Alireza Alizadeh Ghavidel: EIC | **Revision** (1) 15 Mar 2021

Dear Authors
Thank you for submitting the revised version of your manuscript. It has been accepted for publication by our editorial team.
Regards