Reviewer’s report

Title: Different hypothermic and cerebral perfusion strategies in extended arch replacement for acute type A aortic dissection: a retrospective comparative study

Version: 0 Date: 06 Jul 2020

Reviewer: Mauro Iafrancesco

Reviewer's report:

Article assessment
The Authors describe the outcome of two groups of patients who underwent arch replacement with a frozen elephant trunk for acute type A dissection with two different type of cerebral perfusion at different temperature. The Authors need to be congratulated for their excellent results in a so complex and high-risk scenario. They found no difference in the incidence of death, neurological deficit and renal failure but a lower incidence of major adverse events in patients treated with mild hypothermia and bilateral cerebral perfusion. They acknowledge the limitations of the study, including the small sample size and its significance regarding the statistical significance of their findings.

Major Compulsory Revisions
None

Minor Essential Revisions
1. Due to the small sample size, assumption of normality cannot be met without reserve and therefore use of parametric statistical tests cannot be considered surely appropriate. The Authors should offer proof that assumption of normality can be met (i.e. Shapiro-Wilk test or other measures of normality of data) or should use non-parametric tests to perform the statistical analysis.
2. The Authors have correctly pointed out in the discussion the uncertainty regarding the best way (unilateral versus bilateral) to perform antegrade cerebral perfusion during circulatory arrest; they should elaborate a little bit more on the evidence regarding the use of mild versus moderate hypothermia in aortic arch surgery.
3. The Authors stated that: "In the modified group, all the procedures were performed by two experienced surgeons in their respective center, and the results may not be translatable to all centers". They should clarify if the procedures in the control group were also performed by the same experienced surgeons or by less experienced surgeons. In fact, cross-clamping time, CPB time and cerebral perfusion time were significantly longer in the control group and this may have had an effect on adverse outcomes and may act as a bias in the analysis. The Authors should point this out more extensively in the limitations section.

Historical note
Publons Reviewer Recognition. Springer Nature can send verification of this review directly to Publons (a subsidiary of Clarivate Analytics). If you would like to take advantage of this service, please click on the “Yes” option below. Your name, email address, title of the reviewed manuscript, name of the journal, and date of your review submission (the “Review Data”) will then be transmitted to Publons upon publication of the manuscript. If you have already registered at Publons, they will notify you of the receipt of this review and update your profile as per your settings and their policy. If you are not registered with Publons, you will receive an email from them asking you to register in order for them to be able to recognize your review on your new profile page. Publons may use the Review Data to generate derivative metadata for the benefit of Publons and you as a reviewer, carefully considering the sensitivity of such information. For example, Publons may verify your record as a reviewer by updating your profile published on its webservice if you have registered for such service or help editors to identify candidate reviewers. Please find the details of processing in Publons’ privacy policy https://publons.com/about/terms

Yes

Level of interest
Please indicate how interesting you found the manuscript:

An article of importance in its field

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

Needs some language corrections before being published

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?
6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal