Author’s response to reviews

Title: Preoperative platelet count, preoperative hemoglobin concentration and deep hypothermic circulatory arrest duration are risk factors for acute kidney injury after pulmonary endarterectomy: a retrospective cohort study

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Author’s response to reviews:

Dear Editor in Chief and the Associated Editor,

Thank you for your helpful comments on our manuscript. Now we are submitting this revised version after incorporating the reviewers’ comments and making improvements.

Sincerely,
Guyan Wang

Dear Reviewers,

We would like to express our sincere appreciation for your careful reading and invaluable comments for improving this paper. We have addressed all the issues raised by the reviewers. The amendments made to the manuscript are mentioned below with reference to appropriate paragraphs and sections of the revised manuscript.
Sincerely,
Guyan Wang

Response to Reviewer #1:
Reviewer #1: No further comments
Thank you for your positive review.

Response to Reviewer #2:
Reviewer #2: The authors report an interesting manuscript on the incidence and the risk factors for acute kidney injury in patients undergoing pulmonary endarterectomy.

There is only one question or remark I have for the authors.
In a recent publication (J Nephrol. 2019 Jun 26. doi: 10.1007/s40620-019-00624-z. Risk factors of cardiac surgery-associated acute kidney injury: development and validation of a perioperative predictive nomogram. Guan C1, Li C1, Xu L1, Zhen L1, Zhang Y1, Zhao L1, Zhou B1, Che L1, Wang Y1, Xu Y2.) the authors found that age has an impact on the incidence of postoperative acute kidney injury. In this manuscript age did not reach significance but had in the univariate analysis a p value of 0.52. Therefore, I would recommend that the authors also discuss the potential influence of age on the incidence of AKI in patients undergoing pulmonary endarterectomy.
Thank you for your comments. I have incorporated your suggestions and comments into the revised manuscript (version 2).

The potential reasons for age not being an independent risk factor of AKI in patients with CTEPH undergoing PEA are as follows:

On the one hand, the dominant study populations in the previous studies that defined age as an independent risk factor for AKI after cardiac surgery were the children and the elderly. These findings implied that advanced age and younger age were both risk factors for AKI, which might be related to immature or aging renal function. However, the age of onset of CTEPH is approximately 40 years old, which might be a younger age compared to other cardiovascular diseases. As a consequence, the median and interquartile range of age in our study was 50 (37, 56), indicating that the population of our study was young. Therefore, our study did not define age as an independent risk factor for AKI. In addition, the predictive nomogram of the article you mentioned assigned increasing points for age to the final AKI score as the age increased gradually (i.e., to the &lt;40 yrs, 40–60 yrs, 60–80 yrs and &gt;80 yrs groups). This implies that patients from the same age group were assigned the same points for age in the final AKI score. Accordingly, the same age group in our study population (i.e., 40 to 60 yrs) also contributed to the non-significant difference of age as an independent risk factor.

On the other hand, although CSA-AKI is associated with advanced age, CTEPH does not have the same pathophysiological mechanism as other cardiac diseases. However, in patients with thoracic aortic diseases that are similar to CTEPH in terms of CPB management and the pathophysiological mechanism, it is unclear whether age is an independent risk factor for AKI. Therefore, it is necessary for more studies to be performed to demonstrate the association between age and AKI after PEA.