Author’s response to reviews

Title: Application of a new blood flow regulator in aortic endovascular therapy

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Version: 1 Date: 07 Jan 2020

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Point-to-point response to reviewers

Reviewer 1

1. In this article, your describe a new stent with new film, but there were not detail describe about this new stent for type B Aortic dissection, please add more describe image about new stent.

Answer: We appreciate the reviewer’s constructive comment on this. We have added a describe image as new Figure 1.

2. 14 patient were enrolled in this study, and follow-up very long time. but it maybe better than other stent? what do you want to tell us?

Answer: We appreciate the reviewer’s comment on this. Our blood flow regulator is based on the concept of multilayer bare stents. Compared with multilayer bare stents, the blood flow regulator also provides many other advantages when used to treat TBAD. For example, it does not require the physician to measure or calculate the position, diameter, or angle of the important branches before determining where to place the stent. We have discussed more details and highlighted them in the discussion.

Reviewer 2

1. The authors failed to report the postoperative complications clearly. Please use the clear definitions of AKI, ischemic hepatitis/hepatic infarction, TIA, peripheral vascular diseases, etc. as criteria when reporting the postop complications.

Answer: We thank the reviewer for pointing out these critical issues. We have revised the part of postop complications.
- Table 2: It is hard for readers to infer from these numbers. Please either delete or use bar charts to show the differences.

Answer: We have moved the Table 2 to the appendix (sFig. 2).

- As shown in table 1, it seems that quite a few patients suffered TIA and AKI after receiving this stent. Any explanations and comments on that?

Answer: We appreciate reviewer’s comment on this. TIA and AKI are relatively common complications of TEVAR. The incidence of TIA and AKI after TEVAR has been reported to be 5.25%1 and 1% to 34%2, respectively. Moreover, preexisting coronary artery disease, reflecting a severe diseased aorta and anomalies of Willis circle are independent cerebrovascular accident predictors after TEVAR1. On the other hand, preoperative stroke and postoperative paraparesis and paraplegia are significant risk factors for AKI after TEVAR3. In our study, the rates of TIA and AKI are 7.14% and 21.4%, respectively, and the numbers are similar with previous studies.

- For patient 13, was his ruptured AAA associated with the stent?

Answer: No, that was a stable AAA not a ruptured one.

2. In a short-term follow-up (mean 14.7 mo), the authors reported two death cases, one re-op case because of type III endoleak, and a recurrence of type B dissection at the distal end of the stent. Although not all these were due to the procedure, I do not think these outcomes were encouraging.

Answer: That’s right. We may propose a technically feasible product solution. Although the actual experience is not enough to highlight its superiority, it can provide reference for subsequent solutions with the same design concept.

3. The patient selection processing was not clearly stated. What criteria the authors used to enroll the patients (aneurysm location, entry tear location, age, comorbiditie..... )?

Answer: We appreciate reviewer’s comment on this. The patients who underwent the surgery were randomly selected in this study.

4. Please included a figure or video to illustrate the unique features of the new blood flow regulator.

Answer: We appreciate the reviewer’s constructive comment on this. We have added a describe image as new Fig. 1.

5. In the discussion, many conclusions are merely speculations without supporting evidence. It may be more appropriate to focus the discussion on the design and technical innovations rather than the outcomes since this is a 14-patient case series with no control.

Answer: The discussion has been revised according to the reviewer’s suggestion.
6. Compared with a similar product, what would be the significant advantages of this regulator? Please discuss.

Answer: We appreciate the reviewer’s constructive comment on this. We have added this part in the discussion.

1. Please summarize the information contained in Table 1 as statistics, and you may consider putting the original table in the appendix.

Answer: We appreciate the reviewer’s constructive comment on this. We have summarized the Table 1 in new Fig. 2 and put the Table 1 in the appendix (sFig.1).

2. Page 9, line 37-42: what do you mean by "a low accuracy of localization"?
Answer: It is difficult to determine the exact anchoring position under the X-ray

3. Professional language editing is needed.
Answer: The manuscript has been revised by a native speaker.

