Peer Review File

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Reviewer A

1.
Comments to the Author:
Even though the overall number of patients was small, the technique used in each center was quite different. It is likely that the surgical times and other factors were different. It would be interesting to see the data from each center separately to see if surgical technique made a difference in any outcomes or intra-operative factors. In the text, it seems like they did compare certain factors but they did not include the data.

Author's answer:
Thank you for your comments. We thought that comparison between the small number of patients in our cohorts was not useful, so we didn't include the data of comparison. However, if this data helps us to make our paper more interesting and understandable, we are happy to include it.

Changes:
We added the comments at Methods and corrected the our data in Table 1, 2, 3 (Page 23-32, line 494-518)

2.
Comments to the Author:
Did the centers use the previous version of Evita Open before? Could data from those patients be compared to the NEO?

Author's answer:

Thank you for the comments. E-vita Open NEO is the first commercially available hybrid prosthesis in Korea, therefore there was no previous data for comparison; in Hong Kong, E-vita Open Plus was available, but had limited use due to its non-branched design. With the limited data and different design of graft, we believe the comparison would be limited.

Change:
We added the comments at discussion part. (Page 16, line 357-359)

3.
Comments to the Author:
In the HK Hospital, the description of the circulatory arrest and cerebral protection method is not included. While the description for Korean hospital is extensive, very little information is given for the HK hospital. It would be better to include more details.

Author's answer:

Thank you for your comments, the concept and techniques from both centers are similar to achieve best tissue handling and hemostasis. Sequence of anastomosis are slightly different. Surgical technique descriptions from both centers have been amended to enhance the description of techniques from Hong Kong hospital.

Change:
We changed the comments at operative technique parts. (Page 7-9, line 148-188)

4.
Comments to the Author:
At what level was the distal anastomosis performed in each center? Was it distal to the left subclavian origin or in zone 1 or 2?

Author's answer:

Thank you for your comments. We think this is very important point of FET, given that the more proximal the anastomosis, there could be a survival benefit. Most distal anastomosis site was zone 2 in Korea hospital, and zone 2 anastomosis and zone 3 anastomosis were performed at similar rate in HK hospital.

Change:
We added the data at Table 2. (Page 27, line 502)

5.
Comments to the Author:
. The authors had a spinal cord injury rate of 8% and they explain with patient factors other than aortic coverage. This number is consistent with other FET series and is a weakness of the decision to use FET. Other studies showed that SCI was more likely with stent length of 150 mm compared to 100 mm. This device is only available in intermediate 120-130 mm range. Additionally, Asian population tends to be shorter than Western populations and thus may have more coverage with the same stent length. This is also why it is important to know what zone the distal anastomosis was performed in because doing it more proximally will effectively decrease the amount of coverage of the descending thoracic aorta. A large meta-analysis by Preventza et al reviews SCI in FET well. The issue should be acknowledged and discussed by the authors rather than trying to explain it with a fragile aorta and air. These issues may cause stroke but not really SCI.

Author's answer:

Thank you for your comments. We think that the length of FET together with the distal anastomosis site and aortic morphology determines the extent of coverage of the stent graft, it directly affect the occurrence of SCI event.

Since aneurysm has various shapes, in subgroup analysis of only acute aortic dissection, all stent graft length was 120mm long and all distal anastomosis was performed in zone 2. In

that situation, extent of coverage of FET in all except one patient is above T8. Therefore, if a stent graft 120mm is used for Asians and zone 2 anastomosis is performed, most of the distal landing zone will be above T8. It is not consistent with 100 mm, but is consistent with results suggested by Preventza et al. that SCI event occurred more frequently in distal landing zone at T8 or below T8. Therefore, even though 120mm stent graft is used for Asian, most distal landing zone will not be at T8 or below T8, so SCI event will not occur more frequently, as our results.

The two patients from the PWH cohort with SCI, one of the patients had extreme shaggy aorta and a longer stent (180mm) was used in that particular patient. The other patient however had no particular risk factor except a transient hypotension episode in the postoperative ICU stay and recovered completely from SCI after the standard spinal drainage.

Further details have been added to describe the events in more details as part of the discussion.

Change:

We changed the comments at discussion part and Table2. (Page 13-14, line 288-306, Page 15, line 345-354, Page 27-30, line 502-513)

6.

Comments to the Author:

For the patients listed as acute or chronic type III dissection, why were they repaired through sternotomy? Did they also have ascending aneurysm or extensive arch aneurysm?

Author's answer:

Thank you for your comments. As you mentioned, all patients listed on chronic type III dissection is accompanied by ascending aneurysm or extensive arch aneurysm. Therefore, it is more appropriate that the diagnosis category in chronic type III dissection category combined to chronic type III dissecting aneurysm. All patients listed at acute type III dissection has non-A non-B dissection. Because TAR with FET is one of the treatment methods for non-A non-B dissection (1), we performed TAR with FET for non-A non-B dissection.

Change:

We added the comments at methods part and changed at Table 1. (Page 6, line 108-112, Page 23-26, line 494-505)

7.

Comments to the Author:

Do the authors have follow-up data? It would strengthen the paper significantly. Were there late mortality, endoleak, reinterventions?

Author's answer:

Thank you for your comments. Now, both center has over 150 cases of E-vita Open NEO cases and patients having more than 1-year follow-up period. However, our purpose of this script is the assessment of safety and effectiveness in perioperative period and sharing experience of E-vita Open NEO, so we just deal with perioperative data of 25 patients. We try to prepare the other article about the issues such as late mortality, endoleak, reinterventions after more patients and follow up periods.

Change:

We did not change the text.

Reviewer B

1.

Comments to the Author

The term retrospective study is rather generic and non-specific. I would say that this is a retrospective cohort study. Retrospective cohort studies are investigations that are conducted on the basis of an existing database, the data of which were collected in a prospective manner. However, the study concept/ research question was defined post hoc (prospectively collected data, retrospective analysis). It is quite important to clarify whether data were collected prospectively (and were in a database) or whether any data collection had to be performed after the initiative to address a specific research question has been taken. The authors state that the data were collected retrospectively. That seems not to be possible considering the nature of the data. I suppose the authors analyzed an existing database. It is very important to make the distinction between data collection and analysis.

Author's answer:

Thank you for your comments and clear explanation about meaning of 'prospective' and 'retrospective' at data collection and analysis. It seems that the term 'retrospective study' could be confusing. We totally agree with your opinion that the study is a retrospective cohort study and retrospective analysis.

Change:

We changed the comments at abstract and methods part. (Page 10, line 215)

2.

Comments to the Author

Do the authors present a consecutive series of patients? Is there any reason to assume selection bias? Clinical results will be influenced by patient characteristics. The clinical results are very good. Therefore, it is very important to address the point of potential selection bias. The authors state that this is a consecutive series of patients with total aortic arch replacement using the TAR FET with the Jotec E-vita Open99 NEO™ hybrid prosthesis but that is not the point. Were these patients selected from a larger group in a

specific way?

Author's answer:

Thank you for your comments. We did not select the patients from a larger group. We just consecutively perform TAR with FET with E-vita Open NEO if the patients meet the FET indication criteria.

Change:

We did not change the text.

3.

Comments to the Author

The number of significant digits in the different Tables is highly variable. The authors should be consistent. They should e.g. use three significant digits.

Author's answer:

Thank you for your comments. We checked the Table and corrected them.

Change:

Changes in accordance to advice have been updated to Table 1-3.(Page 23-32, line 494-518)

Reviewer C

1.

Comments to the Author

I would like to congratulate the authors on their excellent outcomes in such a complex cohort of patients. The paper is quite "busy" as it duplicates methodology from two centers and afterwards focuses on reinforcement of the arch suture line that many surgeons perform routinely even prior to the advent of FET.

Author's answer:

Thank you for your comments which echo with Reviewer A, we do agree the duplication of techniques description. It is however important for the current multicenters study from 2 Asian centers on the TAR FET technique. Given the reinforcement technique, it is routinely performed in many expert centers to control hemostasis. We agree it is a routine technique, in arch centers; however the adherence to complete circumferential reinforcement is still based on surgeons' preference. We do recommend this technique as one of the options for best possible hemostasis, particularly when centers planning to start for frozen elephant trunk techniques.

Change:

Surgical techniques part has been amended. (Page 7-9, line 148-188)

Reviewer D

1.
Comments to the Author:
There are minor grammatical and spelling errors (line 44 “on”, line 118 “hand”)

Author’s answer:
Thank you for your comments. We have corrected it.

Changes:
We corrected it. (Page 3, line 44, Page 6, line 121)

2.
Comments to the Author:
Distal bleeding is avoided with a double distal suture, although this technique is time consuming. It should be noted that in this prosthesis the collar does not have to be sewn, as is the case in another device available (Thoraflex), and this is something that the manufacturer will have to solve in the future. Your real hemostasis is carried out by the interrupted stitches, on the Dacron graft and not on the collar.

Author’s answer:

Thank you for comments and we agree on the importance of the collar to aid hemostasis. The latest version of E-vita Open NEO in current manuscript had a similar design to Thoraflex Plexus (branched) prosthesis, of which there was a sewing collar to aid the distal anastomosis. Please see line 88-91.

One further advantage of the E-vita Open NEO is the last branch to sewing collar distance, which is 20mm compared that to the 5 mm of the Thoraflex Plexus; which we believe would reduce the risk of grafts kinking, described in reference 15 of the current manuscript.

Change:
We did not change the text. Please see line 88-91.

Reviewer E

1.
Comments to the Author:
In Western Europe, the outcomes of the branched E-vita Open NEO have been reported already with good outcomes. Therefore, the authors should discuss the outcomes of the branches E-vita Open NEO in Asian compared to Western Europe. Moreover, the number of the patients in this study was very small.

Author's answer:

Thank you for your comment. We agree on the promising evidence on TAR FET with the various prosthesis that have been published previously in Europe. The evidence on E-vita Open NEO, which is the latest version of the E-vita Open hybrid prosthesis is still limited.

We do agree a multicenter and inter-continental comparison of TAR FET technique and a comparison on the various prosthesis would be an important and meaningful study to allow further insights on TAR FET.

Current study, however, is a first Asian multicenter study on the outcome of E-vita Open NEO Hybrid Stent graft from it's launch in Asia in 2020 in Hong Kong.

Changes:
Please find the further elaboration in the discussion part (Page 15-16, line 345-361**)**

2.
Comments to the Author:
This study included the two Asian different hospital with consisting of the two different techniques for thoracic aortic diseases, which may affect the outcomes of the branched E-vita Open NEO.

Author's answer:

Thank you and this echo with reviewer A and we have amended the surgical technique and updated the tables.

Change:
We added the comments at Methods and corrected the our data in Table 1, 2 (Page 7-9, line 148-188)

3.
Comments to the Author:
The authors described the inclusion criteria of this study in the methods section. However, there were no inclusion criteria of thoracic aortic aneurysm. Please add the inclusion criteria of aortic aneurysm in the methods section.

Author's answer:

Thank you for the advice, our indication aligns with the EACTS position statement and the inclusion of thoracic aortic aneurysms have been added.

Change:
We added the comments at methods part. (Page 6, line 108-112)

4.

Comments to the Author:

In this study, two patients had spinal cord injury after the operations. However, there were no detail information of the patients who had spinal cord injury. Moreover, in discussion of spinal cord injury, another factors, such as deep site deployment of open stent graft, low level of hematocrit or blood pressure, and etc, may affect the outcomes. Please revise the discussion of spinal cord injury.

Author's answer:

Thank you and that echo with reviewer A showing the importance of the further details. We have further elaborated on the issue.

The two patients from the PWH cohort with SCI, one of the patients had extreme shaggy aorta and a longer stent (180mm) was used in that particular patient. The other patient however had no particular risk factor except a transient hypotension episode in the postoperative ICU stay and recovered completely from SCI after the standard spinal drainage.

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