Author's response to reviews

**Title:** Surgical Management for Acute Type A Aortic Dissection in Patients Over 70 Years-old

**Authors:**

Jiayu Zheng Dr (zheng.jiayu@zs-hospital.sh.cn)
Shuyang Lu Dr (drlushuyang@gmail.com)
Xiaoning Sun Dr (sunxiaoning@zs-hospital.sh.cn)
Tao Hong Dr (hongtao@zs-hospital.sh.cn)
Shouguo Yang Dr (yang.shouguo@zs-hospital.sh.cn)
Hao Lai Dr (laihao@zs-hospital.sh.cn)
Chunsheng Wang Dr (gordonsd@126.com)

**Version:** 4  **Date:** 25 March 2013

**Author's response to reviews:** see over
Authors’ Response to the Reviewers’ Comments

Reviewer's report 1#

Title: Surgical Management for Acute Type A Aortic Dissection in Patients Over 70 Years-old

Version: 1 Date: 13 March 2013

Reviewer: Faisal Al-Mufarrej

Reviewer's report:

Major Compulsory Revisions

1. The authors retrospectively investigate their experience with the surgical treatment for acute type A aortic dissection in patients older than 70 years. The report is interesting and the data review/statistics for this case series is adequate. However, the study is limited by its small size and the biases of retrospective uncontrolled studies.

Answer: Thanks for the reviewer’s suggestion. We believe that there are some inevitable limitations of our study as the reviewer has mentioned, small sample size and retrospective uncontrolled study. From September 2005 to January 2012, we had completed more than 300 open aortic arch reconstruction operations in total. But when we reviewed the data base, we found that there were just 11 cases over 70 years old. Sometimes, we apt to avoid doing these complex operations for the patients over 70 years old because of high mortality. In recent years, the average life expectancy of Chinese people is greatly increased, and there are many advances in the fields of anesthesia, surgical techniques, perioperative nursing and drugs, therefore, we think it is necessary to reconsider the surgical management for TAAD in patients over 70 years old. So we summarized the 11 cases of TAAD in patients over 70 years old in our data base. We will expand the sample of our study in the future and share our experience.

2. Almost all Type A dissection are acute and require immediate surgical treatment in younger and older patients. The authors don’t present sufficient evidence to support the claim that certain authorities would not operate on a patient 70 or older simply due to age. This is especially true with the advent of endovascular stenting. The whole premise of the study is that surgical treatment is a safe ALTERNATIVE. However, many centers today would probably opt to treat such a lethal condition even in the very elderly with surgical or endovascular techniques as opposed to treating
them medically.

Answer: Thanks for the reviewer’s questions. As the reviewer said, there was no authority claim that it is wrong to operate on a patient 70 years or older. There was also no related data to be published. However, by communicating with other domestic cardiovascular experts and some foreign cardiovascular specialists (German, USA), they also recognized that the mortality and morbidity of elder patients were much higher than younger patients at acute phase. At the same time, with the development of endovascular stenting techniques, more elder patients would be treated by endovascular stenting or hybrid surgeries which have less invasive. In our study, we just want to show that surgical treatment is a safe alternative. We will further testify this attitude in our study by expanding the sample.

3. The authors do not present data on the number/outcome of patients presenting to their institution but not undergoing surgical intervention. “The patients with severe preoperative neurological dysfunction or those with significant hemodynamic disturbance (shock) were excluded.” How many patients were excluded? How many patients with type A dissection presenting the center did not undergo surgery? How were those managed? And what were their outcomes?

Answer: Thanks for the reviewer’s questions. Here, we feel sorry that we can not provide the data of the elder patients who did not undergo surgical intervention in detail. In China, there are limited famous cardiovascular centers in most places, except in Shanghai, Beijing, Guangzhou et al. But there are a lot of TAAD patients. So when a TAAD patient was transferred to our center, if he/she had obvious contraindications (severe preoperative neurological dysfunction or those with significant hemodynamic disturbance), then he/she will be transferred to a much smaller cardiovascular department for medical treatment (lowering the BP, alleviating pain et al ). At present, we do not have the data of these patients and the follow-up of these patients are also not be completed. We will try to improve our work in the future study. Thanks for the reviewer’s questions again.

4. The introduction is insufficient. It needs to discuss the different types of dissection, the prognosis, and the various modalities of treatment (with advantages and disadvantages).

Answer: Thanks. We agree with your suggestion. We have added accordingly.

5. Many statements are unreferenced:
a. “Therefore, some centers and surgeons suggest taking conservative surgical strategy or medicine to palliate this life-threatening condition in elderly patients.” Reference?

Answer: Done.

b. “However, as life expectancy has been continuing to increase, there are an increasing number of elderly patients with type A aortic dissection.” Reference?

Answer: Done.

d. “Extended aortic arch resection is usually advocated for younger patients by many experienced centers, but not for elderly patients” Reference?

Answer: We have revised our way of expression. Here, we just summarize the view of many cardiovascular experts after communicating with them.

e. “There are still many controversies which have been discussed for many years.” Reference?

Answer: Done.

f. “Many physicians believe that the risk of a surgical repair is too high in older patients to justify such aggressive approach.” Reference?

Answer: Done.

6. “The indications for open aortic arch reconstruction were the following conditions: (1) primary tear in the large curve of transverse arch or the proximal descending aorta; (2) symptoms of inadequate cerebral perfusion; (3) Marfan’s syndrome[1, 6].” What about patients with tears in ascending aorta (n=2) and multiple tears (n=5)? What’s the relevance of Marfan’s in the study’s cohort that it deserves mention in the Methods section?

Answer: Thanks. We agree with your suggestion. The point 3 (Marfan’s syndrome) has been deleted. In the present study, there were no Marfan’s syndrome patients. Many cardiovascular centers do open aortic arch reconstruction surgeries following the above 3 points. Here, we just want to express that we agree with their attitudes. There are 5 patients with multiple tears (2 or more tears). Two patients have tears locating on ascending aorta, however the dissections affect the aortic arch, so the open aortic arch reconstruction surgeries were also done for them.

7. Please clarify the indication for the David procedure.

Answer: Tissue heart valves are usually used for the patients older than 65 years. If the patients are 55 - 65 years old, the valve selection will depend on situations in detail.
In our present study, all patients were older than 65 years, if aortic valve replacement was needed, tissue valves were the first choice. However, first of all, we should try to valve-sparing (David) procedures for the patients. If the valve morphology and texture were good, aortic sinuses could be plastied, we will try to do valve-sparing (David) procedures. If the aotic sinuses, valves were affected by dissection severely, we will replace the valve with a tissue valve directly.

8. Please explain why not more of the authors’ patients underwent stent grafting.

Answer: Descending aorta are usually involved with dissection in TAAD patients. Sun et al (Circulation 2011) reported that total arch replacement combined with stented elephant trunk implantation demonstrated the superiority of the combination of the surgical and interventional approaches while avoiding the weaknesses associated with the individual methods. We also think that descending aorta stent implantation can improve the future prognosis of TAAD patients. So many patients in our study underwent stent grafting.

9. “These results are comparable with the results of large sample of type A aortic dissection patients what we have reported in our previous work[6].” Change to “These results are comparable to previously reported results on a large sample of type A aortic dissection patients.”

Answer: We agree with your suggestion. We have revised accordingly.

Surgical data, perfusion data, and postoperative ICU information, including cardiopulmonary bypass (CPB) time, myocardial ischemic time, in-hospital time and ventilation time, and drainage on the first postoperative day are similar previous study. These results shown that surgical treatment for elder patients is a safe alternative. The previous study was focusing on the difference of bilateral and unilateral antegrade cerebral perfusion for open aortic arch reconstruction.

12. “One patient needed to continue diuretics.” For what?

Answer: We consider it is heart dysfunction. Our follow-up shown that if he stoped the diuretics, edema of the lower extremities would appeared. Therefore, we suggested that patient to take some diuretics, twice a day. The patient was well.

Minor Essential Revisions

1. There are multiple abbreviations (CABG, ICU and CPB) in the Methods section that are used
without prior identification.

**Answer:** Agree. Change made as indicated by the reviewer.

2. Remove the subtitle “Limitations” under the Discussion section.

**Answer:** We agree with your suggestion. We have done accordingly.

3. There are multiple errors with grammar/syntax.
   a. “Associated procedures consisted of ascending aorta replacement in eleven patients… David operation in one patient, and Wheat operation in one patient.” I am not sure how that constitutes an “associated” procedure when it is the main component of surgical treatment. Suggest rephrasing. “One patient underwent a valve-sparing (David) procedure while another underwent a concomitant aortic valve replacement (Wheat procedure). One patient required coronary artery by-pass grafting.”

**Answer:** Thanks. We agree with your suggestion. We have revised accordingly.

b. “Conclusions Surgical management for acute type A dissection in elder patients”. Suggest rephrasing. Change “elder” to “patients older than 70 years”

**Answer:** Thanks. We agree with your suggestion. We have revised accordingly.

c. “Although the outcomes of surgical treatment for acute type A aortic dissection have been greatly improved in recent years, it remains the most catastrophic disease with high mortality and morbidity” Suggest to rephrase. Change “have been” to “have” and change “remains the most catastrophic disease” to “is still associated with”

**Answer:** Thanks. We agree with your suggestion. We have revised accordingly.

d. “5% to 27.4%, if left untreated or only treated medically, is estimated” Change “27.4%, if” to “27.4%. If” and change “is estimated” to “it is estimated”

**Answer:** Thanks. Agree. We have revised accordingly.

e. “In the present study, we retrospectively reviewed our experience and reported surgical mortality and morbidity, long-term follow-up results of the patients older than 70 years undergoing open aortic arch reconstruction for type A aortic dissection.” Rephrase. Suggest: “In this study, we retrospectively reviewed our experience with patients older than 70 years undergoing open aortic arch reconstruction for type A aortic dissection.”

**Answer:** Thanks. Agree. We have revised accordingly.

f. “Continuous variables were presented as mean±SD, categorical variables as numbers and
percentages.” Change to “, AND categorical”

**Answer: Thanks. Agree. We have revised accordingly.**

g. “All survived patients” appears twice in the text. Change both to “live”

**Answer: Thanks. Agree. We have revised accordingly.**

h. “As dissection involved in aortic valves and left coronary ostia, David operation, Wheat operation and CABG were performed in three patients, respectively.” Suggest rephrasing. Change to “Due to aortic valve or coronary ostial involvement, a Wheat procedure or coronary artery by-pass grafting (CABG) was performed in two patients”

**Answer: Thanks. Done.**

i. “Mean blood product usage included packed red blood cells 1740.9±1413.8 ml (range, 600-5800 ml), serum 1036.4±585.3 ml (range, 200-2000 ml).” Change to “Mean blood product usage included packed red blood cells 1740.9±1413.8 ml (range, 600-5800 ml), and serum 1036.4±585.3 ml (range, 200-2000 ml).”

**Answer: Thanks. Agree. We have revised accordingly.**

j. “she had been in respiratory dysfunction condition before surgery.” Suggest rephrasing. Change to “she had been in respiratory distress preoperatively.”

**Answer: Thanks. Agree. We have revised accordingly.**

k. “One patient had a stroke and lost sight of right eye at sixth year after surgery.” Suggest rephrasing. Change to “One patient had a stroke and lost the vision in his right eye six years after his surgery.”

**Answer: Thanks. Agree. We have revised accordingly.**

l. “age was recognized” Change to “age is”

**Answer: Thanks. Agree. We have revised accordingly.**

m. “aortic dissection and any complications during early stage after surgery may compromise their survival” Change to “aortic dissection, and any complication during the early postoperative period may compromise the survival of elderly patients”

**Answer: Thanks. Agree. We have revised accordingly.**

n. “accounted 31.6% of patients” Change to “accounted for 31.6% of patients”

**Answer: Thanks. Agree. We have revised accordingly.**

o. “to aged patients” Change to “to elderly patients”
p. “However, our results clearly show that acceptable results can be obtained with emergency repair, and the overall in-hospital mortality in the present study was 9.1%, comparable with those in the previous reports, range 5% to 27.4%[3, 11, 12].” Suggest rephrasing. Change to “However, our results clearly show that acceptable results can be obtained with emergency repair in patients 70 years and older; the overall in-hospital mortality in this study is 9.1%, which is comparable to previous reports of surgery on younger patients (5% to 27.4%)[3, 11, 12].”

q. “IRAD also showed that 70% patients would die within 1 week without intervention. 40% with medical treatment alone while surgical intervention could reduce to about 20%[13].” Suggest rephrasing. Change to “As demonstrated by IRAD, 70% patients die within 1 week without intervention and 40% die with medical treatment alone[13].”

r. “Therefore, the advanced age should not be recognized as a sufficient contraindication for surgery of acute type A dissection. We are apt to select surgical repair if there are not any obvious contraindication.” Suggest rephrasing. Change to “Therefore, advanced age should not be considered an absolute contraindication for surgery of acute type A dissection.”

s. “much lower than ours” Change to “much lower than our”

u. “Recently, Chen et al.[6, 15] reported their excellent results of using single- or triple branched stent graft to extensively repair acute type A aortic dissection with less HCA time. We think that their study extend the surgical strategies for elderly patients with type A dissection.” Suggest rephrasing. Change to “Recently, Chen et al.[6, 15] reported their excellent results with using single- or triple branched stent grafts to extensively repair acute type A aortic dissections with less HCA time.”
Answer: Thanks. Agree. We have done accordingly.

v. “So avoiding of direct cannulated in supra-arch vessels for cerebral perfusion can decrease the morbidity of stroke.” Suggest rephrasing. Change to “So, avoiding direct cannulation of supra-arch vessels for cerebral perfusion may decrease the incidence of neurological events.”

Answer: Thanks. Agree. We have done accordingly.

w. “We believe that there are some inevitable limitations for the present study. First, this is a retrospective observational study and the nonrandomized design may have affected the results, including unrecognized confounding factors and bias. As type A dissection is a kind of lethal disease and usually need an emergency surgery, we should select optimal strategies for different patients and it is difficult to make a randomization for them. Secondly, this study just represents one single center experience. There are surely some disparities among different centers and operators. Lastly, the sample of this study is relatively small and only eleven patients were in this group.” Suggest rephrasing. Change to “This study is limited by its retrospective design. This study also represents a single center approach to a relatively small number of patients. As such, unrecognized confounding factors and selection bias may have also affected our outcomes.”

Answer: Thanks. Agree. We have done accordingly.

Discretionary Revisions

1. Expand on “conclusion” section to discuss future clinical and research directions.

Answer: Agree. We have revised.

2. Table 3 “nasopharyngeal” and “rectal” and Table 4 “phelbothrombosis” should all be capitalized for consistency

Answer: Agree. We have revised accordingly.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Answer: Done.

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

'I declare that I have no competing interests'
Reviewer's report 2#

Title: Surgical Management for Acute Type A Aortic Dissection in Patients Over 70 Years-old

Version: 1 Date: 13 March 2013

Reviewer: Murali Vettath

Reviewer's report:

Excellent results on this difficult age group.

1. When you mentioned, total circulatory arrest with SCP, in fact there is no TCA.

What exactly were you trying to express. Please do clarify.

**Answer:** Yes, you are right. There is no total circulatory arrest, we mean total circulatory bypass. Thanks.

2. What surgical glue was used during your procedure? It could be a useful tip for the junior surgeons.

**Answer:** Fibrin Sealants of TISSEEL (Baxter Healthcare Corp) and Biocol (CRTS, Lille, France) have been used extensively in our department.

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.