

Peer Review File

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Reviewer A

The authors present a retrospective analysis of a single center experience regarding the arterial cannulation site in aortic dissection surgery. They included a total of 135 patients in ten years. However, there are severe concerns regarding content, methodology and conclusion as well as incoherent presentation of this study: Methods: Pre-, intra-, and postoperative data are scarce. Relevant risk factors, risk score, comorbidities or preoperative conditions like malperfusion of neurologic deficit are missing. No information is given on the extent of dissections, DeBakey type I or type II. Intraoperative procedures, operative times are missing.

Comment 1: Methods: Pre-, intra-, and postoperative data are scarce. Relevant risk factors, risk score, comorbidities or preoperative conditions like malperfusion of neurologic deficit are missing. No information is given on the extent of dissections, DeBakey type I or type II. Intraoperative procedures, operative times are missing.

Reply 1: I appreciate the comments. The study for the manuscript is a retrospective study and was not designed to address all the risk factors and risk scores for the patient population. As a result, a comprehensive assessment of the patient's comorbidities was not completed, as it was not seen as necessary to address our objectives. The extent of dissection was determined and will be included in the manuscript (See Method section). All of the patient's in the study were classified as having Stanford Type A aortic dissections. At our institution, the Stanford

classification is primarily used instead of the Debaquey classification. The details of the procedure were added to the Method section.

Comment 2: Methods: line 88-90 belongs to discussion section. Surgical strategy is not well depicted. How did you decide for femoral, axillary or direct aortic cannulation? You used unilateral antegrade cerebral perfusion – which side, why?

Reply 2: The authors appreciate the comments of the Reviewer. I have added the surgical strategy that we used in the Method section and also the decision to use which artery (Femoral, axillary, etc.). We agree that this should have been included in the manuscript.

Comment 3: Results: line 109-112: How can you tell? You don't deliver any stroke rates at all? This is pure interpretation, no results. Line 116-117: redundant. Line 118: What is the link between ethnic diversity and your outcomes? Line 121-126: This is interpretation, no results. What do you want to tell?

Reply 3: The authors understand the comments. The patients were all evaluated and they were not found to have strokes that were directly related to the access vessel. We did not include the data on all the patients who had strokes but on analysis those patients with neurological changes were thought to be due to the circulatory arrest times. We have removed the redundant lines.

There is no link between ethnic diversity and outcomes. The information on ethnic diversity was just an observation that we wanted to point out.

Comment 4: Conclusions: Line 128: Interpretation not based on any data! Observation is not the same as causality. Line 133: An axillary artery can also be cannulated directly. Line 136/137: redundant. Line 139: stroke rates are not reported. Line 155: Explain! What is

your strategy choosing the vessel to cannulate? Line 174: In experienced hands, the axillary cannulation is fast and provides safe arterial access before entering the chest.

Reply 4: The authors appreciate the comments of the reviewer and will address each issue that was reported. 1. We agree that this manuscript does provide observational data and perhaps a follow up randomized study would be ideal. I have included statements indicating this. 2. We agree that the axillary artery can be cannulated directly however; a significant portion of surgeons would agree that this could lead to bleeding issues as well as injury to the axillary artery. 3. We will remove the redundant lines. 4. We will explain the lack of stroke data. 5. An explanation on the decision to cannulate each vessel will be included.

Reviewer B

Comment: This is an interesting study regarding femoral cannulation but does not add a lot of things in the literature. Nevertheless, maybe there is a value if certain things are addressed: More details are needed regarding the intraoperative strategy (temp, why only unilateral ACP, pharmacologic maneuvers by anesthesia prior to circulatory arrest or while cooling) -Also, what was the transfusion rate? -What was the circulatory arrest time/ CPB time? -Did the authors perform multivariable analysis? What are the results?

Reply: The authors appreciate the reviewer comments and will address each issue. 1. Additional details regarding intraoperative strategy have been included in the method section. All of the patients in the study had Stanford Type A aortic dissections and were treated with hemiarch aortic repairs. The patients all had unilateral antegrade cerebral perfusion, as it is the standard strategy for hemiarch repairs. In contrast, patients undergoing total arch replacements underwent

bilateral antegrade cerebral perfusion. 2. The transfusion rates were not recorded and available for this study. 3. The circulatory arrest time and CPB time were recorded in the hospital records but not reviewed and evaluated for this study. This data would be helpful and will be included in a follow up study. 4. Multivariable analysis was not performed for this study although this will be included in a follow up study.

Reviewer C

Comment 1: In this retrospective single center series, the authors summarized their experience of 135 patients who underwent repair of acute type A aortic dissection. The outcomes are compared among 3 arterial cannulation groups: 98 femoral arterial cannulation, 21 axillary artery cannulation, and 16 direct aorta cannulation. Unadjusted comparisons showed no significant differences, and the authors concluded that femoral arterial cannulation thus remains a safe and efficient choice for arterial cannulation in the repair of acute type A aortic dissection. The topic is relevant and important especially in the overall trend of less use of femoral cannulation for this disease entity. The study, however, has many challenges as below.

The sample size is small compared to the published, precluding comprehensive analysis to address the asked clinical question. As a result, the data remain mostly descriptive.

Reply 1: The authors appreciate the reviewer comments. We believe that although this is not the largest sample size for an evaluation of aortic dissection, a total of 135 patients is large enough to assess the influence of arterial cannulation on outcomes.

Comment 2: How was the cannulation site decided? Obviously, it is a source of a bias. Did you analyze the influence of the surgeon? Surgeon's volume/experience is shown to be associated with the outcome.

Reply 2: The author's appreciate the comments. The cannulation strategy was left to the surgeon's preference. This will be included in the manuscript. The study did not evaluate the surgeon's volume or experience however, each surgeon had more than 5 years of clinical experience and averages 8-10 aortic dissections annually. The influence of the surgeon is important in terms of outcomes and a more careful evaluation will take place in a future updated study.

Comment 3: How was antegrade cerebral perfusion performed with femoral cannulation?

Reply 3: The reviewer asks an important question and will be included in the manuscript. All of the patients in the study received unilateral antegrade cerebral perfusion as our standard protocol at my institution.