Outcomes of Aortic Surgery after Previous Sternotomy

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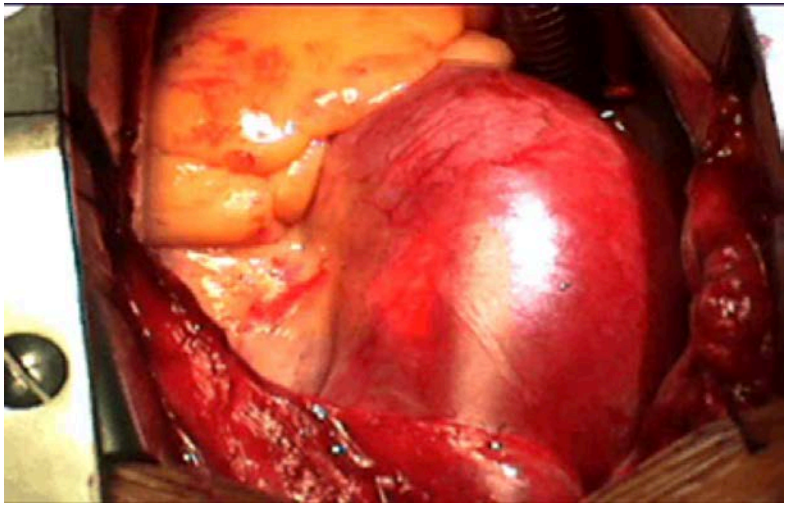
Background / Study Objective

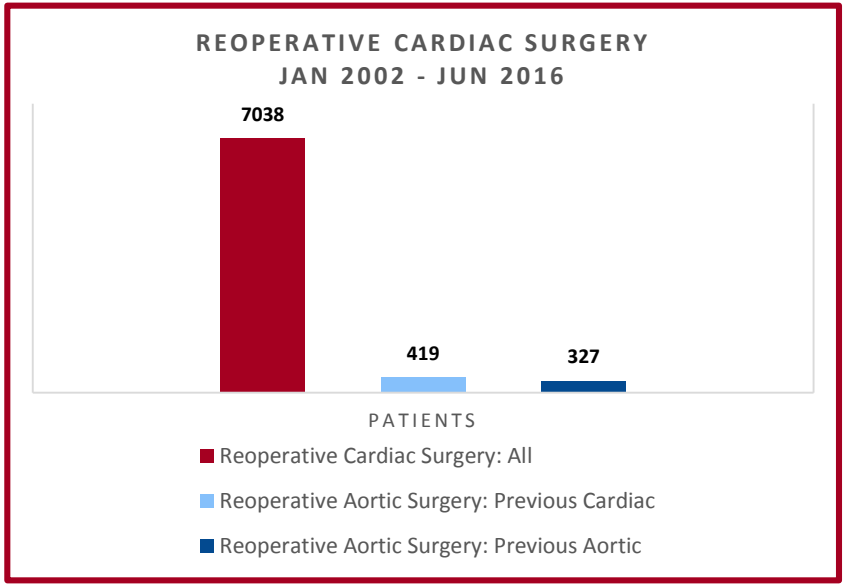
- Reoperative cardiac surgery carries increased risk
  - advanced patient age/comorbidities
  - the nature of the previous procedure
- Aortic disease is a complex pathology
  - Reoperations may be necessary[1]
- Limited data currently exists on the outcomes of reoperative aortic surgery, or cardiac surgery in general.
- This study aims to assess the outcomes of reoperative aortic surgery after previous sternotomy.



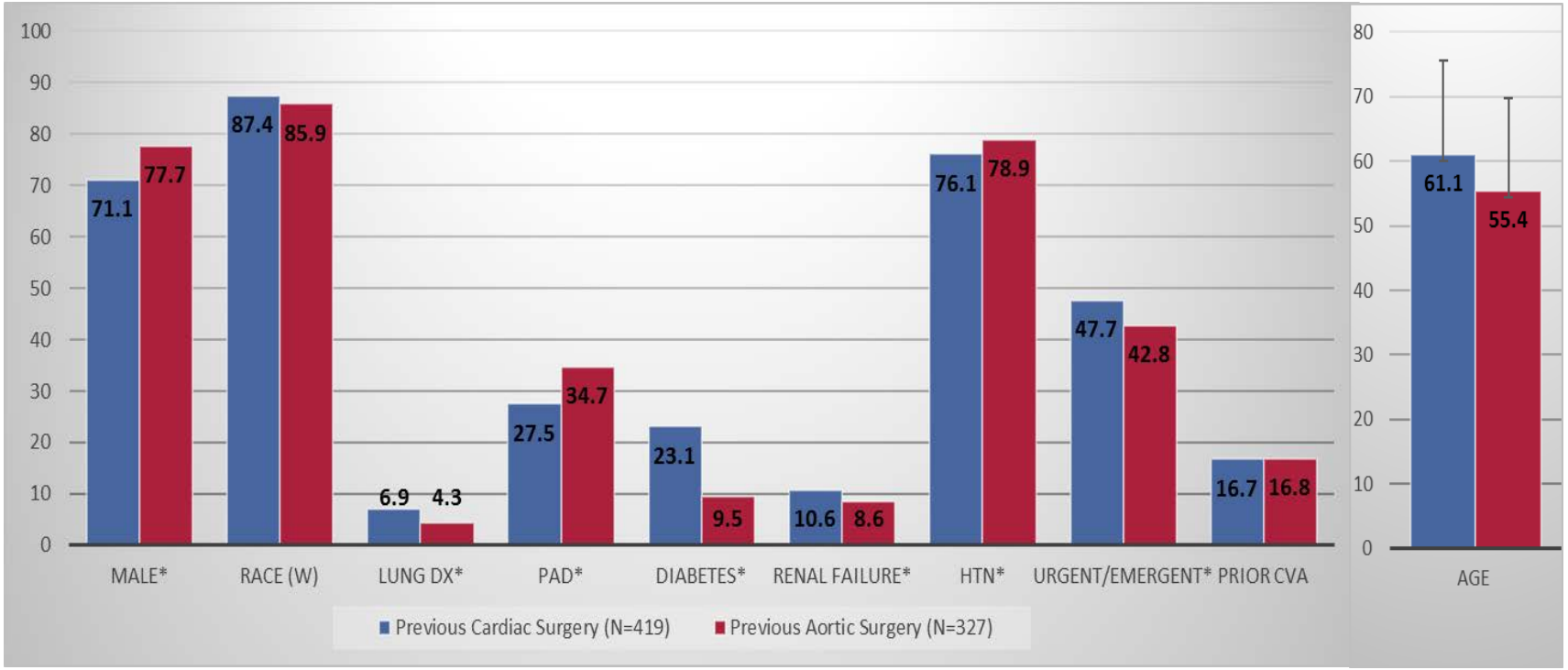
1. Jassar AS, Desai ND, Kobrin D et al. “Outcomes of aortic root replacement after previous aortic root replacement: the "true" redo root.” *Ann Thorac Surg*. 2015 May;99(5):1601-8

Methods

- All procedures with a redo sternotomy CPT code collected via query of institutional STS database between January 1, 2002, and June 30, 2016. (n=7038)
- Patients who underwent aortic surgery (graft replacement of the aortic root, ascending, or arch) identified by CPT code. (n=746)
  - Previous aortic surgery and previous non-aortic cardiac surgery (including aortic valves)
- Univariate Chi square analyses and t-tests were used to compare pre-operative comorbidities and post-operative outcomes.
- Univariate Kaplan-Meier survival estimates were used for survival analysis.
- Multivariate logistic regression was used for 30-day mortality endpoint analysis.

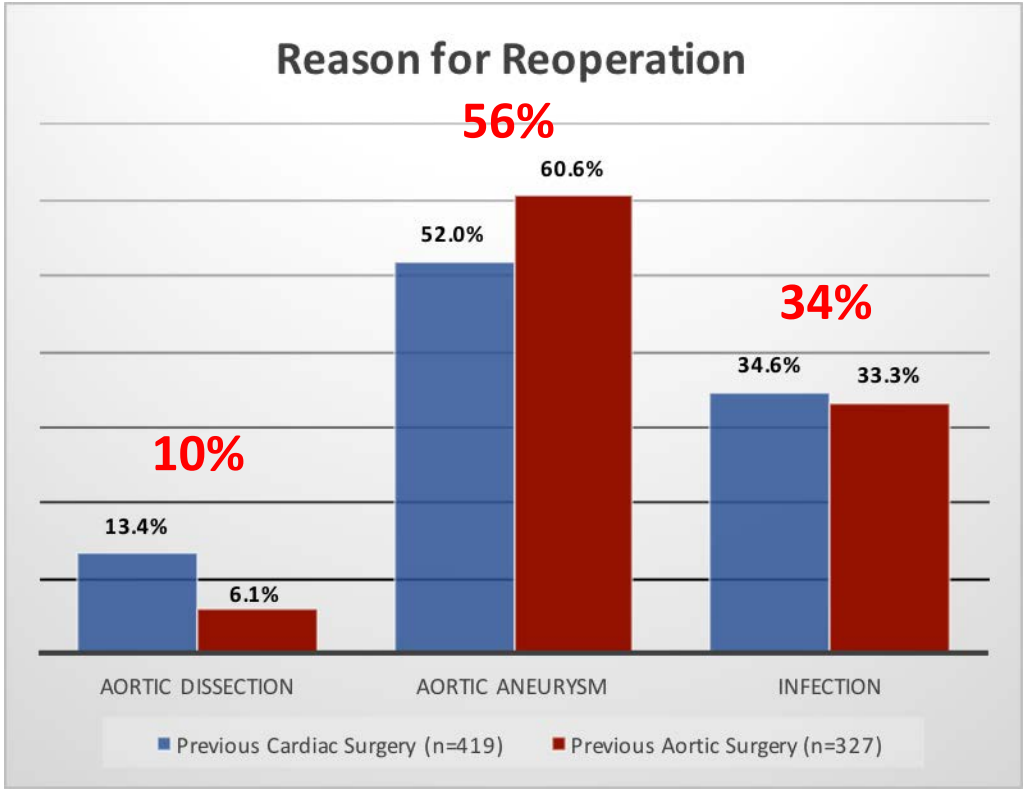


Baseline Patient Characteristics

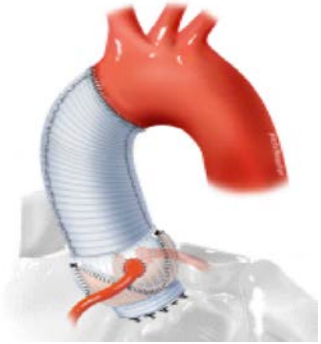


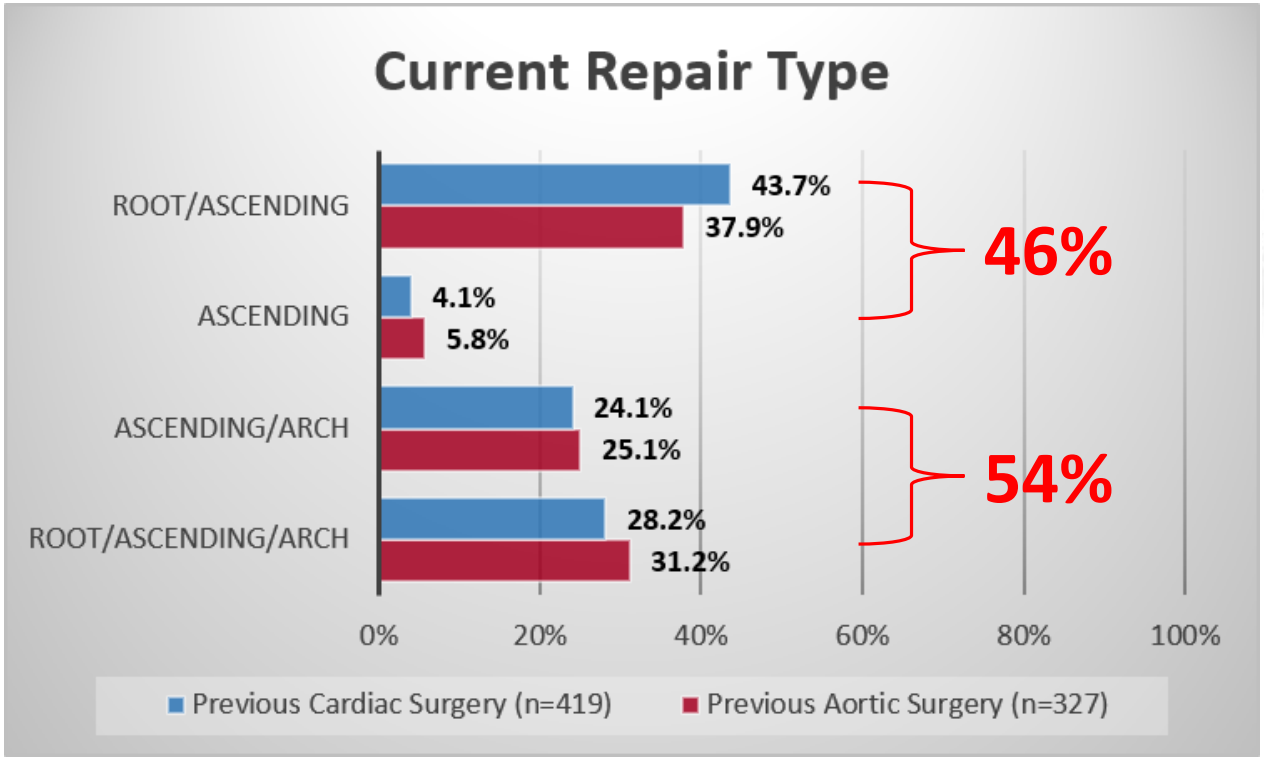
*Denotes significant p values ($p<0.05$)

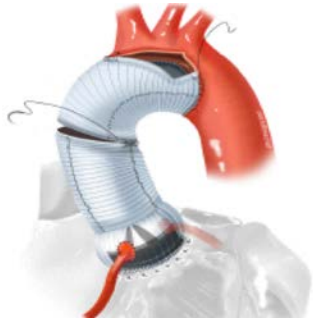
Operative Indications



Operative Characteristics

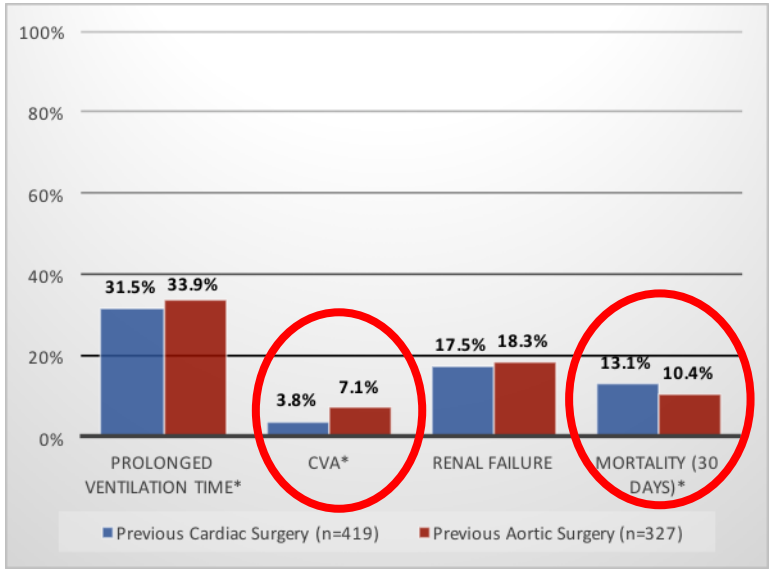


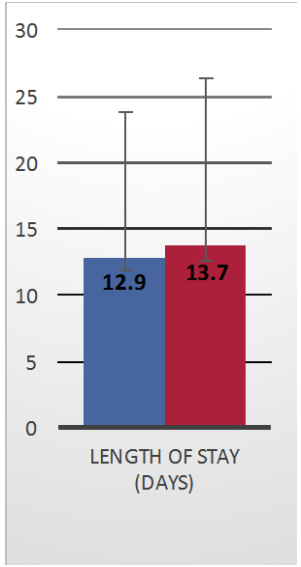




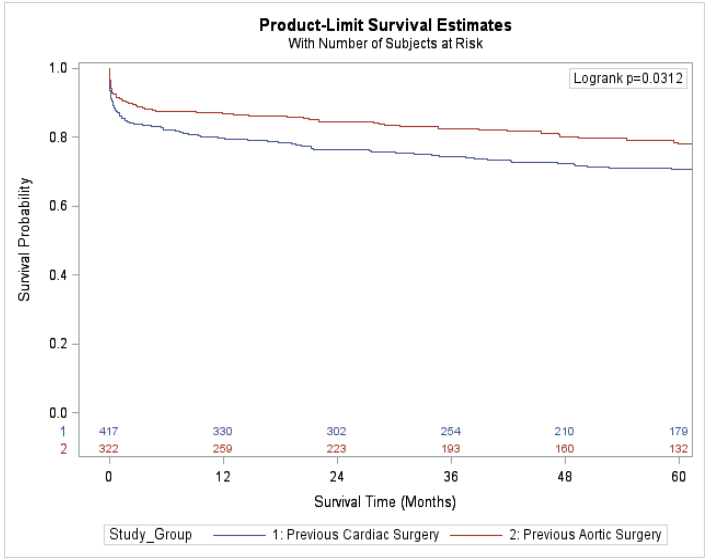
Results

Outcomes, Previous Cardiac Surgery vs. Previous Aortic Surgery

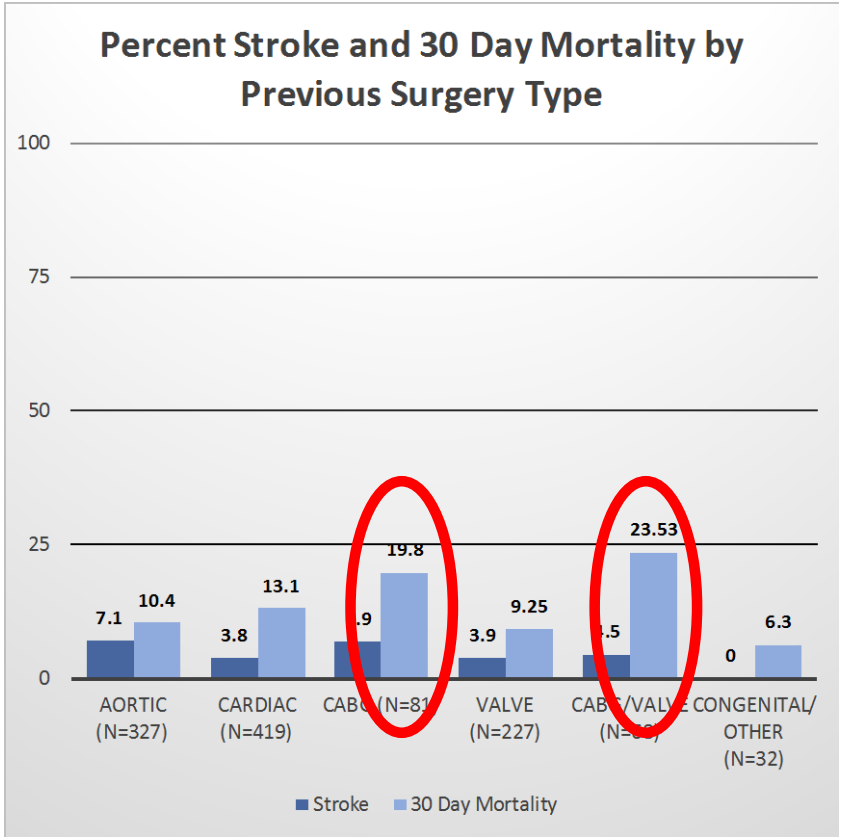




KM 5-year Mortality, Previous Cardiac Surgery vs. Previous Aortic Surgery



Results



Multivariate Logistic Model – 30 day mortality

Variable	Odds Ratio	95% Wald Confidence Limits	
Age	**1.03**	**1.006**	**1.044**
Male	0.82	0.494	1.369
Diabetes	1.18	0.677	2.063
Chronic Lung Disease	1.38	0.602	3.171
Previous CVA	1.54	0.883	2.685
Previous CABG	1.72	0.888	3.33
Previous CABG/Valve	**2.20**	**1.133**	**4.256**

Conclusion

- Aortic surgery after previous open heart surgery is reasonable with acceptable post-operative outcomes.

- Patients who underwent previous aortic surgery were more likely to have a postoperative CVA or prolonged ventilation time (>24 hours).

- Patients who underwent previous cardiac surgery without aortic repair had higher 30 day mortality.

- Patients who previously underwent CABG/Valve were at 2 times higher risk of death at 30 days.
  - Different treatment therapy for this group of patients?