

Outcomes of Endovascular Repair of Thoracic and Thoracoabdominal Aortic Pathology in Connective Tissue Disease Patients at a Tertiary Aortic Center

John R. Spratt MD, Salvatore T. Scali, MD, Suzannah Patterson, BS, Tomas D. Martin, MD, George J. Arnaoutakis, MD, Eric I. Jeng, MD, MBA, Martin R. Back, MD, Thomas S. Huber, MD, Gilbert R. Upchurch, Jr., MD, Thomas M. Beaver, MD

Florida Vascular Society 35th Annual Scientific Sessions
Plenary Session
April 28, 2022



Disclosures

- None

Introduction

- Open aortic repair (OAR) is the gold standard for connective tissue disease (CTD) patients with aortic pathology.
- CTD patients undergoing OAR have mortality rates of ~5-15% and 5-year survival of ~50-60% even at centers of excellence.
- Clinical guidelines recommend *against* endovascular aortic repair (EAR) in CTD patients, despite lack of Level I evidence.
- Objective of this analysis was to evaluate outcomes of EAR in CTD patients

Methods

- Retrospective, single center review-consecutive EARs in CTD patients (2005-2019)
- Primary end-point: aorta-related mortality
- Secondary end-points: complications, freedom from any secondary aortic intervention (SAI), & all-cause mortality
- Logistic regression used to determine risk of selected variables with outcomes
- Kaplan Meier methods used to estimate freedom from end-points

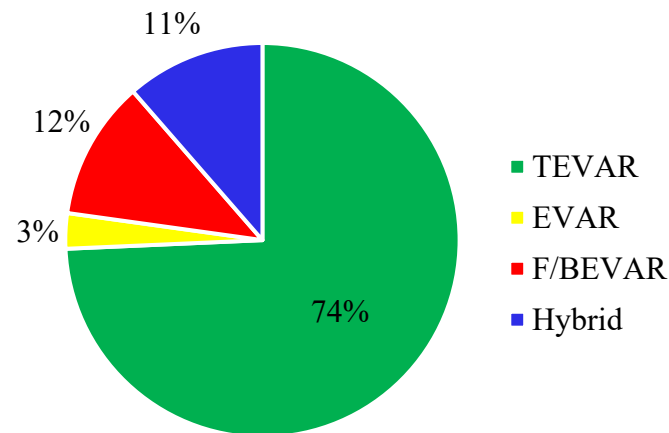
Demographics and Comorbidities

<i>Variable, N = 35</i>	<i>No. (%)</i>
Age, years (SD)	48 (17)
Sex	
Male	24 (69%)
CTD subtype	
Marfan syndrome	30 (86%)
Ehlers-Danlos syndrome	3 (9%)
Other	2 (6%)
ASA score ≥ 3	32 (91%)
Comorbidities	
Hypertension	25 (71%)
Hyperlipidemia	6 (17%)
Atrial fibrillation	9 (26%)
Pulmonary hypertension	1 (3%)
Cardiomyopathy	2 (6%)
Cerebral vascular accident	7 (20%)
Coronary artery disease/myocardial infarction	5 (14%)
Congestive heart failure	3 (9%)
Diabetes mellitus	4 (11%)
Renal impairment	5 (14%)
Smoking	14 (40%)
Chronic obstructive pulmonary disease	5 (14%)

Presentation and Operative Details

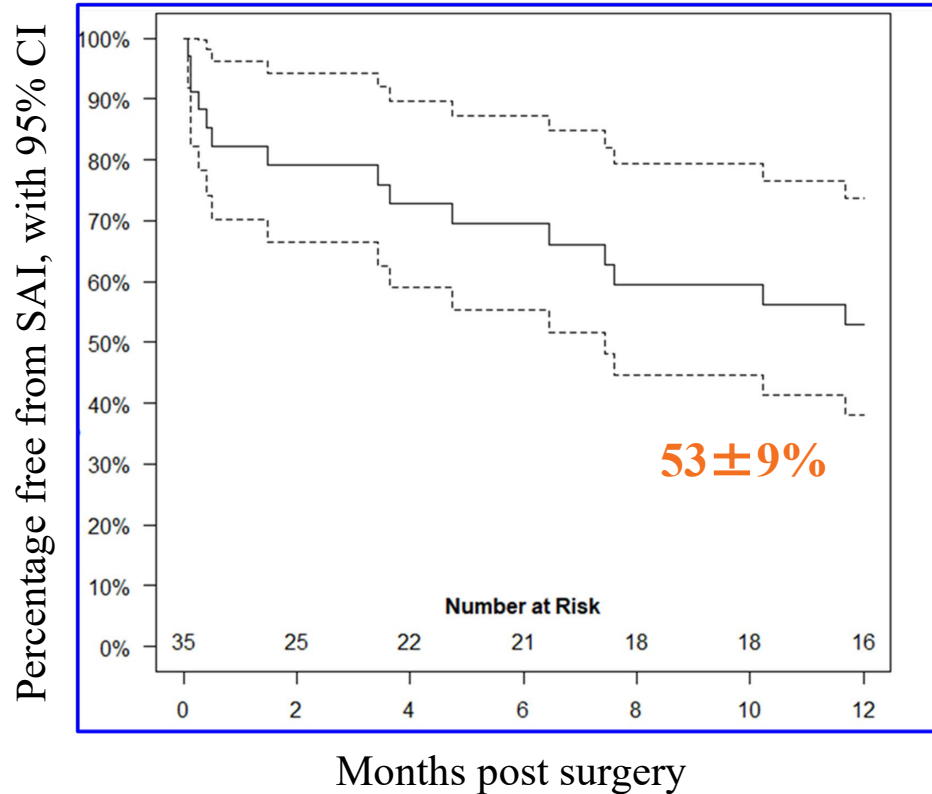
Variable	No. (%)
Mean aortic diameter, mm (SD)	63 (11)
Prior aortic intervention	28 (80%)
Non-elective presentation	26 (74%)
Degenerative aneurysm	5 (14%)
Dissection	30 (86%)
Type A	6 (20%)
Type B	23 (77%)
Acute	13 (37%)
Chronic	16 (46%)
Reason unfit for OAR	
Prior surgery	28 (80%)
Comorbidities	17 (49%)
Other reason	5 (14%)
OR Details	
Number of devices	2.4 (1.3)
Coverage length, cm (SD)	32 (13)
Proximal LZ = Dacron graft	21 (60%)
Estimate blood loss, mL (SD)	225 (120)
Outcomes	
30-day mortality	2 (6%)
Any complication	10 (29%)
Length of stay, median [IQR]	9 [5,22]

Type of Endovascular Repair

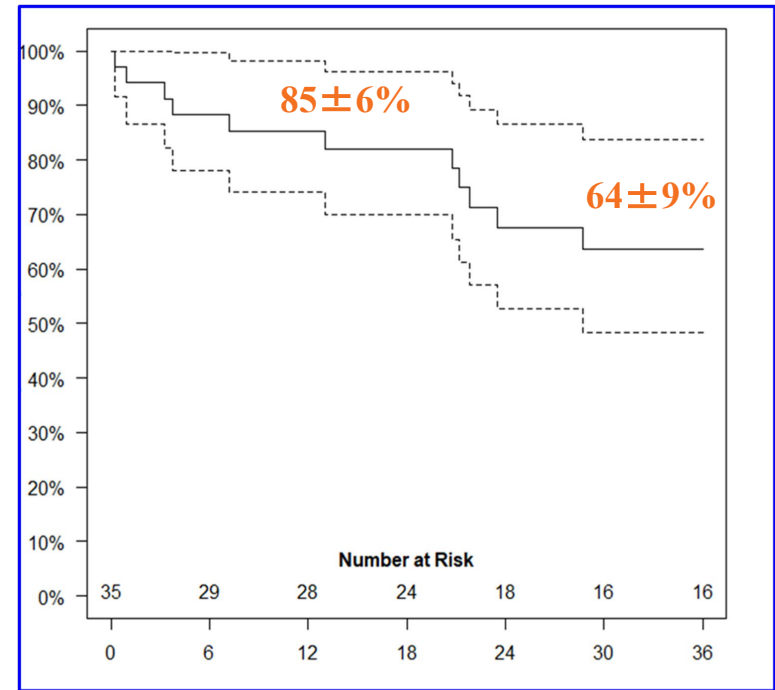
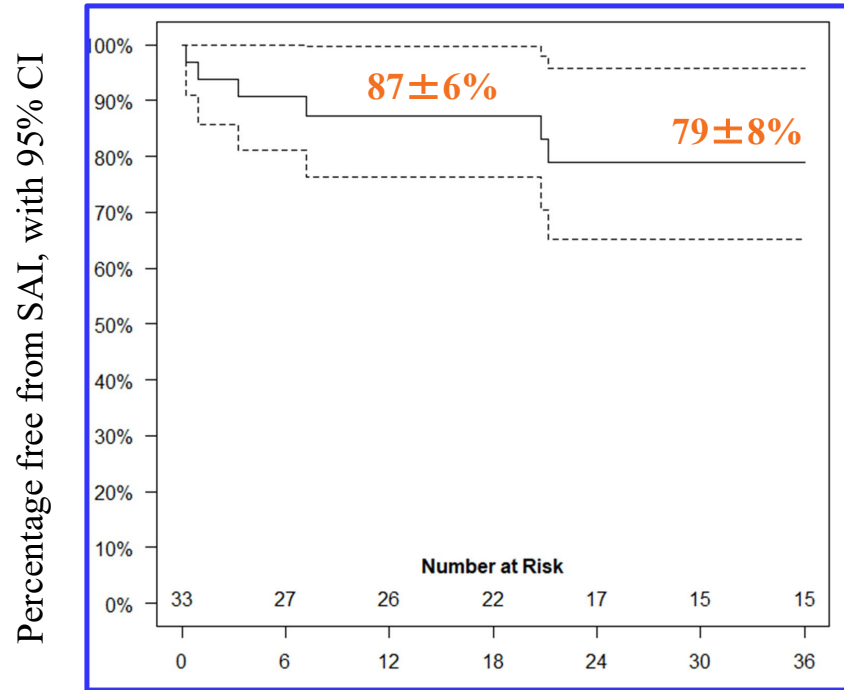


***Mean Follow-up Time = 48±46 months
[Median 29, IQR 14, 76]**

Freedom from Secondary Aortic Intervention



Freedom from Aorta-Related and All-Cause Mortality



Months post surgery

Odds of Aorta-Related Mortality

<i>Variable</i>	<i>Odds Ratio</i>	<i>95% CI</i>	<i>P-value</i>
Emergent indication	8.0	.6-11	0.1
Men vs. Women	3.2	.3-30.6	0.3
≥ 2 preoperative aortic interventions	3.1	1.1-4.5	.03
Landing into prosthetic graft proximally	2.1	.4-13.1	0.4
Conversion to open aortic repair	1.1	.6-7.1	0.7
Dissection-related indication	1.1	.1-11.7	0.9
Landing into prosthetic graft distally	0.9	.09-9.8	0.9
Age (continuous variable)	***	NA	0.9

Conclusions

- Short-term results of EAR for CTD patients compare favorably to OAR literature and appears to have similar subsequent SAI rates and long-term survival
- EAR may stabilize acute aortic syndromes and/or reduce complexity of subsequent OAR in selected CTD patients
- Life-long surveillance is required due to high SAI rates
 - Surveillance intensity should be greater than non-CTD patients undergoing EAR due to risk of early re-intervention
 - Should be disclosed to patients perioperatively
- History of multiple prior OARs appears to predict poor long-term outcomes with EAR and should be considered when selecting CTD for these repairs



UFHealth
UNIVERSITY OF FLORIDA HEALTH