PATHOLOGY SPECIFIC AORTIC OUTCOMES AFTER THORACIC ENDOVASCULAR AORTIC REPAIR (TEVAR)

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BACKGROUND

Thoracic endovascular aortic repair (TEVAR) has become a recognized treatment for several thoracic aortic diseases. We evaluated the long-term outcomes of TEVAR stratified by specific aortic pathologies.

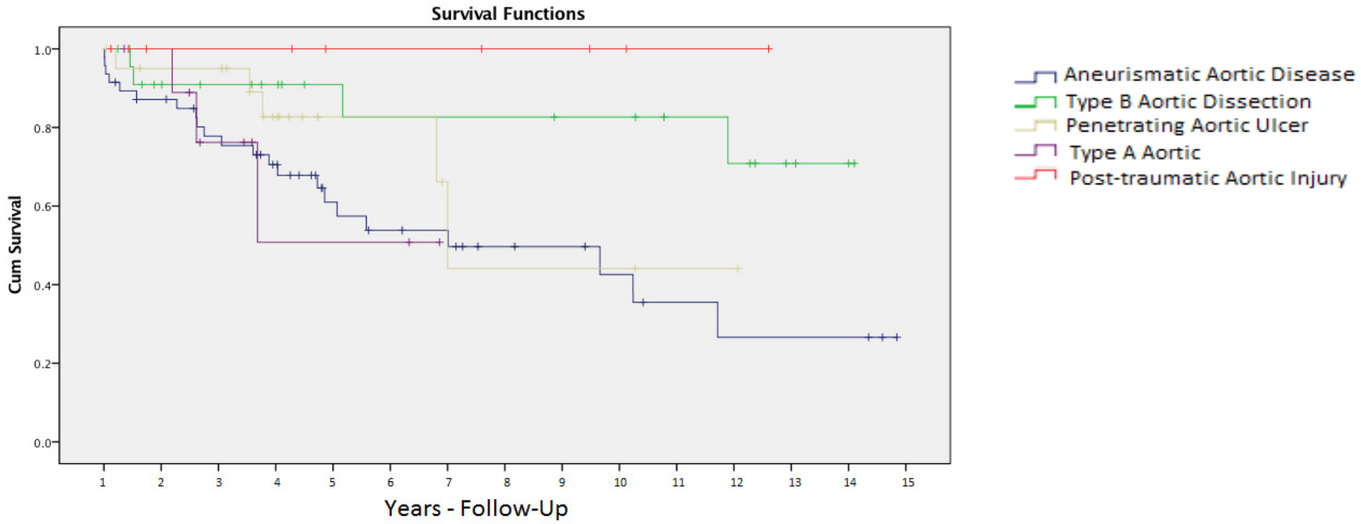
METHODS

Between June 2002 and November 2019, 111 patients were treated with TEVAR. Patients were divided according to the indication for implanting TEVAR. Demographics, preoperative characteristics and intra and postoperative outcomes were evaluated. Overall and aortic-specific survival were determined using Kaplan-Meier methods. Log-rank tests were used to compare survival between groups. Cox regression was used to identify predictors of endoleak.

RESULTS

Patients were stratified in 5 groups according to the indication for TEVAR. A total of 47 (42%) underwent TEVAR for aneurismatic aortic disease, 24 (21%) for type B aortic dissection, 21 (18%) for penetrating aortic ulcer, 10 (9%) for type A aortic dissection and 9 (8%) for post-traumatic aortic injury. Patients with post-traumatic aortic injury are younger(p=0.001), have less hypertension (p=0.001), less diabetes (p=0.029), less peripheral vascular disease (p=0.042) and less prior PCI stent (p=0.033). Patients with aneurismatic aortic disease present a significantly higher preoperative creatinine level (p=0.017). No difference between groups were observed for left ventricular ejection fraction (p=0.178). Survival was different based on the indication for TEVAR (log rank 0.024). Patients with type A aortic dissection had the lowest survival (50% at 5 years) and survival for aneurismatic aortic disease was 55% at 5 years. Patients with traumatic aortic injury present 100% survival at 5 years, while the survival for type B aortic dissection and penetrating aortic ulcer at 5 years were 83%. During follow up, no specific aortic pathologies requiring TEVAR were related to endoleak development (hazard ratio 0.741; 95% confidence interval 0.231 - 2.380, p=0.614).

	Aneurism n = 47	Type B n = 24	Ulcer n = 21	Type A n = 10	Posttraumatic n = 9	p
Age, mean ± SD, y	74.4±7.8	68.9±10.9	74.9±7.1	66.2±8.7	51.2±18.6	0.001
Female, n (%)	9 (19%)	7 (29%)	7 (33%)	2 (20%)	2 (22%)	0.729
Smoking, n (%)	28 (59%)	10 (41%)	11 (52%)	7 (70%)	3 (33%)	0.329
Hypertension, n (%)	41 (87%)	24 (100%)	21 (100%)	10 (100%)	3 (33%)	< 0.001
Diabetes, n (%)	10 (21%)	2 (8%)	10 (47%)	1 (10%)	1 (11%)	0.029
Hypercholesterolemia, n (%)	37 (78%)	15 (62%)	19 (90%)	5 (50%)	4 (44%)	0.058
Lung disease ≥ Moderate, n (%)	9 (19%)	2 (8%)	8 (38%)	3 (30%)	-	0.061
BMI kg/m2, mean ± SD	25.5±4.1	26.5±5.1	25.7±4.1	26.1±4.9	28.9±9.7	0.195
BSA m2, mean ± SD	1.80±0.2	1.88±0.2	1.85±0.2	1.96±0.2	1.99±0.2	0.771
Creatinine, mean ± SD	122.5±88	97.2±28	79.1±20	92.7±26	93.6±20	0.017
LV EF, mean ± SD	53.6±10	58.3±9	54.7±14	48.3±9	61.4±6	0.178
Atrial Fibrillation, n (%)	3 (6%)	1 (4%)	2 (9%)	1 (10%)	-	0.689
Peripheral Vascular Disease, n (%)	7 (14%)	4 (16%)	9 (42%)	-	1 (11%)	0.042
Prior PCI-stent	6 (12%)	3 (12%)	9 (42%)	-	-	0.033



CONCLUSION

TEVAR is a safe and effective procedure with excellent long-term results for traumatic aortic injury. However, overall long-term survival is reduced, particularly for patients with type A aortic dissection and aneurismatic aortic disease. Further study should address the role of comorbidity in long-term survival.