10-year outcome of the Thoracic Endovascular Aortic Repair (TEVAR) Procedure

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10-Year Outcome of the Thoracic Endovascular Aortic Repair (TEVAR) Procedure

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OVERVIEW

Purpose: The goal of the study was to assess the positive and negative outcomes of the TEVAR procedure in hopes of identifying recurrent issues.

- TEVAR has been FDA approved and implemented at Lehigh Valley Health Network (LVHN) since 2006.
- TEVAR is used to treat aneurysms and dissections in the descending aorta and/or the aortic arch.[1] The Cardiothoracic surgeon accesses the aorta via the femoral artery. This is referred to as the Transfemoral (TF) approach and is the preferred method, although other methods of access are sometimes implemented. Several catheters are guided through the arteries to the aortic aneurysm/dissection. The catheters and stent are monitored using X-rays and ultrasounds. Once the stent is positioned properly, it is deployed (expanded) to fit the aorta and act as a new vessel through which blood can flow.[2] The aneurysm will eventually shrink in the most successful cases.

METHODS & DEMOGRAPHICS

- This was a retrospective study that included 80 procedures performed on 76 patients at LVHN. The interval of study was from April 2006 to March 2016.
- Patients were followed-up with post-operatively in the Cardiothoracic office. CT scans were performed at the time of each follow-up in order to check the status of the graft implant.
- Data collection for this study consisted of reviewing the CT scan report at each follow-up and recording any complications with the graft or lack thereof.
  - Complications include leakage or migration of the graft implant[3]

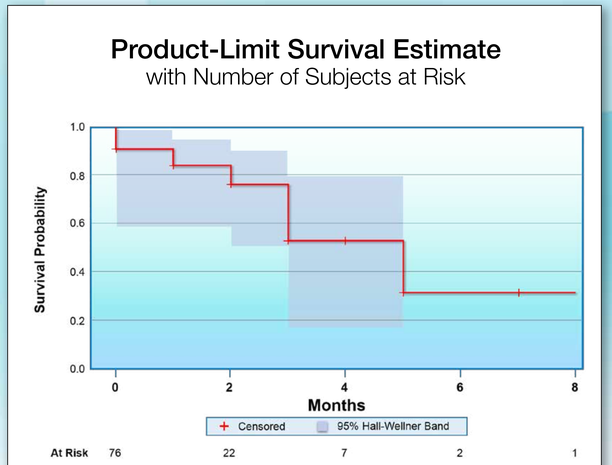
Table 1. Demographics of TEVAR Patients

Number of Patients (n)	N = 76
Age (years), Range	Mean Age = 83, Range = (18-88)
Sex (male or female)	Male = 46, Female = 30

Table 2. Comorbidities

Number of Patients (n)	Value
Hypertension	80.26% (61/76)
Obesity	17.11% (13/76)
Diabetes	14.47% (11/76)
Kidney Disease	Acute (9.21%), Chronic (15.79%), Kidney Failure 2.63%)
Smoking History	61.84% (47/76)
Readmission within 90 Days	36.84% (28/76)
Aneurysm Shrinkage	25% (13/76)

OUTCOMES



- Kaplan Meier curve representing if a patient has a TEVAR complication, there survival probability.

Table 3. Patient Status at Time of Follow-up

What was patient's status at time of follow-up	Survival (Did the patient survive?)		
Frequency Percent	Dead	Survival	Total
Did Not Experience TEVAR Complication by End of Follow-up	17 22.37 29.31 68.00	41 53.95 70.69 80.39	58 76.32
Experienced TEVAR Complication	8 10.53 44.44 32.00	10 13.16 55.56 19.61	18 23.68
TOTAL	25 32.89	51 67.11	76 100.00

- Table 3. Representing patients status at time of follow-up.

Table 4. Neurological Complications

Complication	Values
Hemiparesis	1.40% (1/76)
Weakness of the lower extremities	1.40% (1/76)

- Table 4. Patients experiencing neurological complications post-operatively.

RESULTS

- 51 of the patients survived
- A total of 2 patients (8%) experienced TEVAR related deaths.
- Of the 76 patients 58 (76.32%) of them did not experience a complication at time of follow-up.
- At 5 years post-operatively the median survival is 50%.
- Of the 18 (23.68) patients who did experience a complication 10 (13.16%) of them survived and 8 (10.53%)of them died.
- 1 patient out of the 76 patients experienced right hemiplegia and subsequent death 5 months after the procedure, and 1 patient experienced weakness in the lower body.

CONCLUSIONS

TEVAR is well tolerated in a patient population with high co-morbid conditions. In studies comparing open repair versus the TEVAR procedure, the risk of paraplegia was far less for the endovascular approach. TEVAR is a safe and effective alternative to open repair for patients who otherwise would not be able to receive treatment.

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