Long-term Outcomes of FB-EVAR: Where is the Technology Going?

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Disclosures
• None

F/B-EVAR: Significant evolution over 20 yrs

Fenestrated and branched endovascular aneurysm repair outcomes for type II and III thoracoabdominal aortic aneurysms

Matthew J. Eagleton, MD, Matthew Follansbee, BS, Katherine Wohle, MPH, Tara Marraoui, MD, and Yuki Kameuchi, BSN, Cleveland, Ohio

Twelve-year results of fenestrated endografts for juxtarenal and group IV thoracoabdominal aneurysms

Tara M. Marraoui, MD, Matthew J. Eagleton, MD, Yuki Kameuchi, BSN, Ahna Rathore, and Katherine Wohle, MPH, Cleveland, Ohio

Large Volume Experience
• Thousands of F/B-EVAR reported worldwide
  – Prospectively collected databases
  – Represent evolution of
    • Procedure
    • Graft designs
    • Patient selection
  – Predominantly reported from high volume centers

• Is there long-term data?
Twelve-year results of fenestrated endografts for juxtarenal and group IV thoracoabdominal aneurysms

- Single center, prospective study: 2001-2013
- 610 patients
  - 258 Juxtarenal
  - 349 Type IV TAAA
- Fenestrations and scallops – varying degrees of coverage (Renals, SMA, Celiac)
- Mean FU: 8 years

Overall Mortality: 5 Yr – 50%

8-Year Survival: 20%

8-Year Freedom from Aneurysm-Related Mortality: 98%

Freedom from Composite Outcome

~65% at 5 years

Secondary Procedures
Branch Occlusions
Stent Migration
Endoleak
Aneurysm Growth
Spinal Cord Ischemia

Does Not Vary Based on Extent of Repair
Composite Outcomes

- Secondary Procedures: 26.4%
- Spinal Cord Ischemia: 1.16%
- Stent Fracture: 2.2%
- Stent Migration: 0.16%


Target Vessel Patency: 5-Yr = 93%

9% required reintervention overall

CC Outcomes Analysis

Aortic Aneurysms treated with F/B-EVAR:
PS-IDE, CMD: High Risk Patients
JRAA and Type IV TAAA

2001
2004

274 Patients (77.4%)

45 Patients (12.7%)

35 Patients (9.9%)


Freedom From All-Cause Mortality

36-Month Values:
Overall: 57%
Type II: 46%
Type III: 62%

p=0.01

Freedom From Aneurysm-Related Mortality

36-Month Month Value: Overall: 91%


Late Reintervention

Endoleak 67 (18.9%)
Branch Occlusion or Stenosis 27 (7.6%)
Aortic-Related Re-interventions 9 (2.5%)
Component Separation (without endoleak) 5 (1.4%)
Access Site Pseudoaneurysm 4 (1.1%)
Chronic Lower Extremity Ischemia 3 (0.8%)
Iliac Aneurysm Expansion 1 (0.2%)


36-Month Branch Vessel Patency

Celiac 96%
SMA 98%
Left Renal 98%
Right Renal 98%


Patency and Freedom From Reintervention

5-yr Patency: 94%
5-yr Freedom from Late Reinterv: 70%


Conclusions

• Data represents an evolution in devices and techniques
• F/B-EVAR is a good alternative for patients with aortic aneurysms — but will require reintervention
• Keys to success:
  − Routine monitoring and early re-intervention for stenosis and endoleaks
  − Careful selection of proximal and distal aortic landing zones
  − Outcomes vary by extent, experience and improvements in technology and techniques
**Future Directions**

- Improved assessment of procedures and devices
- Improved access to grafts
- Better understanding of patient selection and post-operative management

**Continued Large Volume Outcomes Assessment**

United States Fenestrated Branched Research Consortium

**IMPROVED AVAILABILITY AND NEW DEVICES**

**Cook T-Branch Device: PS-IDE Trials**


**Medtronic Device – in PS-IDE Studies**
GORE® EXCLUDER® Thoracoabdominal Branch Endoprosthesis (TAMBE)

IMPROVED MEDICAL CARE OF THE ANEURYSM PATIENT

KM Survival Estimate

Survival %
0 10 20 30 40 50 60 70
0 1 2 3 4 5 6 7
Years

High-risk, untreated
US Life Matched

Conclusions

• Exciting time for endo-aneurysm repair
• Technology is improving
• Techniques are improving
• Patient care is improving
• Outcomes have surpassed that of conventional open surgery and should be considered the gold standard in the near future!

Thank you!

Overall Hazard of Death

Deaths (%/year)
0 10 20 30 40 50 60 70
0 1 2 3 4 5 6 7
Years

US Life Matched
Hazard Phases: 3 phases!!!

- Early Phase (0-4 mos)
- Constant Phase
- Late Phase (> 4 mos)

Increased Risk Death: Factors from Multivariable Model

- Congestive heart failure
- COPD
- Renal dysfunction
- Anemia
- Coagulation disorders
- Type I/II repair and larger aneurysms