Treatment of Distal Aortic Growth after TEVAR for Type B Aortic Dissection

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Disclosures

Consultant: Cook Inc, WL Gore, Terumo

Cell Biology of the Aorta in utero

- Is not uniform.
- Different lineages have different biologies.
- Very likely to respond differently to physical and environmental stressors.
- Are aneurysm patients doomed?

Wall Biology May Underlie Distal Dilation and Type 1b Failures

- Vasculogenesis is completed in utero.
- Elastogenesis is completed by 18mos of age.
- Elastic fiber maintenance is life-long process of homeostasis
  - Highly modifiable over years

Aortic Wall Homeostasis

Detrimental Factors:
- Age
- Smoking
- COPD
- Cholesterol damage “foam cells”
- Genetic influences

Fate of Aorta after Type B Dissection

- INSTEAD XL: Favorable remodeling after TEVAR for TBAD
53 yo with acute Type B dissection h/o TEVAR for PAU 2006

- 73 year old female with 5.6 cm AAA
- Past Medical/Surgical/Psychiatric History: hypertension, renal cancer, COPD, history of sick sinus syndrome now on pacemaker, and varicose veins. Left nephrectomy in 2009
- Dong, JVS 2010 SINE

Conversion Operation for Distal Aorta Dilation

The Two Archetypes of Distal Growth after TEVAR

- **In aortic dissection:**
  - Primary tear biomechanical forces determine clinical course.
  - Endovascular implication: solid proximal fixation and better distal devices.
  - Has aortic wall biology failed regardless?

- **In degenerative aneurysm:**
  - Highly driven by failure of aortic wall homeostasis
  - Not rapidly modifiable
  - Endovascular implication: Prediction of “healthy” wall segment.

Thank you