Why TEVAR Should be Performed on ALL Acute Type B Aortic Dissection Patients

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MOST Treatment of Type B Dissection

TEVAR has replaced open repair for most patients with complicated TBAD

30-day mortality after TEVAR is 10-15% even in the sickest patients

Medical therapy remains the standard for uncomplicated dissection

Natural History of Medical Management

- Of 298 Patients with uncomplicated TBAD
  - >5 year follow-up
  - 58% experienced failure of medical therapy
  - 38% Death
  - 30% Intervention (66% Thoraco)

Chronic Phase

Aneurysmal degeneration of dissected aorta with expansion of false lumen

Do uncomplicated TBAD Exist?

Continued patency of false lumen flow is demonstrated risk factor

Disclosures

- Medtronic - Consultant
- Endologix - Consultant
- Bard - Member of CEC
200 Patients with uncomplicated TBAD
- >5 year follow-up
- 45% had >5mm aortic growth
- 24mm/year – False lumen
- 2.3mm/year – no false lumen growth

Aneurysmal Degeneration

Freedom from Growth

254 Patients with uncomplicated TBAD
- 7 year follow-up
- Entry tear >10mm (OR 2.1)
- Aorta >40mm (OR 2.2)
- FL >20mm (OR 1.8)
- FL Thrombosis – protective (OR 0.22)

Predictors of Intervention

156 Patients with uncomplicated TBAD
- 3.7 year follow-up
- Decreased intervention free survival
- Aorta >44mm
- FL >22mm
- 25% of interventions were ascending aorta

Predictors of Intervention

14 idealized models chronic TBAD
- Shapes/tears/FL location etc
- Combination of prox and distal tear size determines HD
- Lg prox tear increased FL pulse pressure up to 76%
- Lg distal tear decrease PP and MP
- Prox tear stenting dec PP 54%

Models of Fluid Dynamics

Complicated TBAD treated with TEVAR
- 10% Reintervention rate at 5 years
- Stable max aortic diameter
- Increased true lumen
- Decreased false lumen
- 84% had total false lumen obliteration

Aortic Remodeling
Complicated TBAD treated with TEVAR
- 6% 1-year mortality
- Aortic remodeling after TEVAR
- Increased ave diameter in unstented seg
- Hiatus 33mm – 39mm
- Celiac 31mm – 35mm
- Infrarenal 25mm – 26mm

Aortic Remodeling

Survival

• 1129 consecutive Type B medical Rx (75%) TEVAR (24%)
• TEVAR pts twice likely cTypeB (62% vs 37%)
• SIMILAR 30day mortality (11% vs 9%) !!
• 5yr KM death favor TEVAR (15% vs 29%, p=.018)

Survival - IRAD

Meta-Analysis

-16 Trials – 10,307 patients
- TEVAR vs BMT
- Lower re-intervention (OR 0.33)
- Better long-term survival (OR 0.71)
- Less aneurysmal expansion (OR 0.15)
- Higher stroke rate (OR 1.65)

Who should not get TEVAR?

• Patients with syndromic and nonsyndromic connective tissue disorders
• Unsuitable anatomy
• < 2 years life expectancy
• Small intramural hematomas
• Over time, will all medically treated TBAD have aneurysmal degeneration?

Summary

• 58% of acute TBAD fail medical therapy at 4 years
• Aneurysmal degeneration seen with
  – Aortic diameter >35–40mm
  – FL diameter >20-22mm
  – Entry tear >10mm
• TEVAR promotes aortic remodeling
• TEVAR improves survival over BMT
• TEVAR decreases re-intervention over BMT
• Most patients with acute TBAD will likely benefit from TEVAR in the subacute setting