Technical and Clinical Considerations for Optimal TEVAR

Treatment in Type B aortic dissections

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Disclosures

Medtronic - Research grants and consultancy
Endovascular Management of Chronic TBAD

- Challenging thoracic pathology for endovascular management
  - Characterised by thoracic and abdominal dilatation
  - Multiple fenestrations – retrograde false lumen perfusion
- Clinical success must be judged over long term
Aortic Related Mortality – MOTHER Registry

**Aortic Related Mortality**

- TAA – 0.6 per 100 p/y
- AAD – 1.2 per 100 p/y
- CAD – 0.4 per 100 p/y

**Time (years)**

*Patterson et al Circ 2013; 127;24-32*
Aortic Reinterventions – MOTHER Registry

Aortic Reinterventions – MOTHER Registry

- TAA: 2.1 per 100 p/y
- AAD: 5.3 per 100 p/y
- CAD: 6.7 per 100 p/y

MT 2015

Patterson et al. Circ 2013; 127; 24-32

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Predicting Success of TEVR for CBAD

- Early assessment TEVR for CAD ??

- Easiest measure is extent of aortic remodelling

  - Relationship aortic remodelling:
    - reinterventions
    - aortic expansion
    - all cause mortality
False Lumen Perfusion and Reintervention

**Distal 1/3 Endograft**
- FL Thrombosis
- FL Patent

**Level Coeliac Axis**
- FL Thrombosis
- FL Patent

Freedom from reintervention

Years
Aortic Remodelling and Aortic Events

Since it was first reported in 1999, thoracic endovascular aortic repair (TEVAR) for type B aortic dissection has emerged as a less invasive treatment for complicated acute aortic dissection. By closing the primary entry tear using stent-grafts, the blood flow is redirected into the true lumen, resolving malperfusion and/or preventing rupture of the false lumen. Thus, this approach can provide a significant early treatment effect. In 2004 and 2005, the authors observed a reduced incidence of aortic events in patients treated with TEVAR compared with those not treated with TEVAR. Aortic remodeling was the only significant risk factor for late aortic events. Patients with aortic remodeling had a higher rate of freedom from aortic events compared with those without aortic remodeling (98% vs. 89% at 3 years).

Keywords: thoracic endovascular aortic repair, type B aortic dissection, aortic remodeling, stent-graft, patient false lumen, endoleak, false lumen enlargement.
Aortic Remodelling, Aortic Expansion and Survival

Mani et al. JEVTR 2012; 43: 386
Aortic Remodelling and Outcome Chronic TBAD

- Extensive aortic remodelling describes expansion true lumen and distal false lumen thrombosis

- Extent of remodelling associated with rate of aortic reintervention and aortic related events

- Extent of remodelling associated with survival
Achieving Extensive Aortic Remodelling in CBAD

- FL thrombosis occurs over length of stent

- Increasing endograft coverage increases extent of FL thrombosis – risk / benefit

- Active management of FL ????
Active Management False Lumen – Prevent Retrograde Flow

- Access abdominal fenestrations – occlude
  - Fenestrated graft / branched graft
  - Hybrid visceral debranching + stent
- Open surgery
  - False lumen occluder
False Lumen Plug
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