Blood Pressure Control for Accurate Arch Deployment

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Disclosure

• COOK Inc - Consulting, IP
• GORE – Consulting
• Aortica – Advisory Board
• Medtronic – Advisory Board

Consequences of Inaccurate Deployment

• Endoleak
• Migration
• Arch vessel Coverage

Steps to Achieve Accurate deployment

• Planning – finding the best landing zone
• Device Choice
• Intraoperative adjuncts

“PLANNING

“A good Landing Zone provides a Secure Seal and Fixation
For a Thoracic Stentgraft both Short and Long-Term”
What Do We Want In a Landing Zone?

- Accessible
- Anatomically Stable
  - Straight?
  - Parallel wall
  - Long Enough
- Healthy Tissue
  - Non aneurysmal
  - Non Dissected?
  - Normal Connective Tissue?

Sobocinski et al BJS Jan 2016

- M2S data
  - 899 TEVAR patients
  - Mean FU 2 years
- Sac Expansion Significantly Higher if
  - Neck > 38mm diameter
  - Neck < 20mm length
  - Sac Expansion is more common the more risk factors present

Landing Zone

Reaching Zone 0-2

- Proximal bare spring
  - Allows coverage of branches
  - Provides alignment of the proximal sealing stent
- Incorporating cervical vessels
  - Branch devices
  - Chimney Technique
  - In Situ Fenestration

Conformability

Tip Capture
Grafts with fixation points!

In Situ Fen LSCA

INTRAOPERATIVE ADJUNCTS

Achieve Stable Wire Position
- Stiff Guidewire to the Aortic Valve
  - Zone 1-3
- In Ascending repair (zone 0)
  - Guidewire in left ventricle

Intraoperative Guidance
- Use the Preoperative Imaging!
  - Avoid Parallax
  - Decrease Radiation
- Mark the LSA
  - Diagnostic catheter from L Brachial
- Use Fusion if possible
Perfect Postioning

- Pharmacologically Induced Hypotension
- BP control
  - Rapid pacing
  - Adenosine (JES 1996 Dorros)

Pharmacologically Induced Hypotension

- Nitro
- Slow reduction in BP
- Increases stroke volume
- Increased pulsatile displacement of SG

Perfect Postioning

- BP control
  - Rapid pacing
  - Adenosine (JES 1996 Dorros)

- BP reduction to 50mmHg vs. 82mmHg
- More rapid recovery
- Risk of V fib
- Troponin increase in 83%*
- Requires cardiologist or anesthesia?

Safety and Efficacy of High-Dose Adenosine-Induced Asystole During Endovascular AAA Repair

Ronald A. Kahn, MD; David M. Menkowitz, MD; Michael L. Marin, MD*; Larry H. Holler, MD*; Richard Parsons, MD*; Victoria Teodorescu, MD*; and Maryanne McLaughlin, MD*

- Dose range from 24-90mg
- 9% cardiac events
  - 4% prolonged asystole with temperature pacemaker

Perfect Positioning

- BP control
  - Rapid pacing
  - Adenosine (JES 1996 Dorros)

Endovascular repair of a descending thoracic aortic aneurysm: A tip for systemic pressure reduction

- Reduces BP to 50mmHg
  - Decreases preload
- Rapid recovery of BP
- Easy femoral access

Technique

- Femoral Vein Access (16F)
- Proglide
- Lunderquist wire through the heart
- CODA Balloon (40mm) in right atrium
- Position Endograft
- Inflate and pull down CODA into SVC
  - Assistant hold balloon in place
- BP drops in 10-15 s
- Deploy Endograft
- Deflate balloon
Ongoing Study

- Compare to use of Rapid Pacing during TVR
- Cardiac enzymes 24h
- Echocardiography
- ECG

Summary

- Find a Good Landing Zone
  - Healthy, No curve, parallel
- Choose Correct Device
  - The Devil is in the Details!
  - Know Your Device Intimately
- Utilize Your Imaging Intraoperatively
  - Avoid parallax, FUSION imaging
- Control BP when going into Zone 0 and 1
  - Local experience