Indication for Early Non-Operative Treatment with BTAI:
It is Safe and Lowers Mortality in Selected Patients:
Indications for Early TEVAR

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Aortic Injury in Maryland
2009 – 2013
149 patients
81% at UM

Non-operative Treatment is Safe and Lowers Mortality in Selected Patients: Aortic Injury & TBI

No Disclosures
TBI Progression

- Non-op: 2/22 (9%)
- Early repair: 10/29 (34%) \( P < 0.05 \)
- Delayed: 0/24 (0%) \( P = 0.001 \)

Early Aortic Repair Worsens Concurrent Traumatic Brain Injury

- Early repair is associated with TBI progression
  - 1st 24 hours: period of instability / sensitivity

- Delayed repair safe with anticoagulation
  - 48 – 72 hour delay
  - TBI stabilized on imaging

Do All Injuries Need Repair?
Nonoperative Management of Traumatic Aortic Pseudoaneurysms

- 18 studies, 937 patients with traumatic PSA
- 21% managed non-operatively
  - 4% required late interventions
  - 2% aortic mortality

- Poor long term follow-up at this time

Indications for Early TEVAR

Limitation of Injury Grading
Aortic Injury Risk Assessment

- Lesion staging & Grade
- Clinical Stability

All BTAI patients

Excluded:
- In extremis
- Low grade lesions
- Repair < 48 hrs
- Non-aortic death < 48 hrs

Stable + high grade lesion

Rupture:
- Contrast extravasation
- Surgery or autopsy

Stable:
- No repair within 48 hrs

Diameter Ratio

Periaortic Hematoma

High risk for aortic rupture when any 2 are present (ie, fix early):
- Lactate > 4 mM
- Mediastinal hematoma > 10 mm
- Lesion:normal aortic ratio > 1.4 mm

90% Accuracy
Clinical judgment alone→65%

Summary

- In appropriately selected patients, early nonoperative treatment is preferable & safe with TBI.
- Not all high-grade injuries require repair
  - Quantifiable Anatomical and Physiologic factors can be used to direct the timing of TAI repair.
- Injury staging optimizes patient selection & enables lesion specific management