Michael Jacobs
No disclosures
Staged repair and neuromonitoring during TAAA procedures – is it helpful?

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electrical stimulation
500 V; ~1.2 A, 5 serial stimuli

- pyramidal cell in motor cortex
- peripheral nerve
- pyramidal tract
- alpha motor neuron in anterior horn of spinal cord

MEP response
abd. poll. brevis muscle

MEP response
tibialis anterior muscle
MEP monitoring during open TAAA (800 procedures)

- 0 false positive
- 0 false negative
- 100% correlation
- Paraplegia < 4%
What would be the ratio for staged open and endo repair in extensive (type II) TAAA?

collateral spinal cord vasculature
Only endovascular repair of TAAA:

- 11 publications
- 873 patients
- Transient SCI: 13% (0-31%)
- Permanent SCI: 5% (0-21%)
Open repair of thoracoabdominal aortic aneurysms in experienced centers

Konstantinos G. Moulakakis, MD, Georgios Karaolanis, MD, Constantine N. Antonopoulos, MD, John Kakisis, MD, Christos Klonaris, MD, Ourania Preventza, MD, FACS, Joseph S. Coselli, MD, and George Geroulakos, MD

Athens, Greece; and Houston, Tex

(J Vasc Surg 2018;68:634-45.)

- 28 publications
- 9738 patients
- Spinal Cord Ischemia : 8.3%
- Paraplegia : 5%
<table>
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<tr>
<th>Open repair</th>
<th>Endovascular repair</th>
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<tbody>
<tr>
<td>CSF drainage</td>
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<tr>
<td>Preserve LSA and HA perfusion</td>
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Strategies to prevent SCI

Open repair
- CSF drainage
- Preserve LSA and HA perfusion
- Spinal cord function monitoring
- BP management
- Staged repair
- Mild / moderate hypothermia
- Distal aortic perfusion
- Intercostal art. reattachment
- Spinal cord cooling

Endovasc. repair
- CSF drainage
- Preserve LSA and HA perfusion
- Spinal cord function monitoring
- BP management
- Staged repair
- Early leg/pelvic reperfusion

Preserve original inflow and stimulate alternative inflow to the spinal cord arterial collateral network
Results EndoTAAA (n=112)

- **Historical staging:** 28%
  - 35% abdominal aorta
  - 58% thoracic aorta
  - 7% both thoracic and abdominal aorta

- **TEVAR staging:** 9%
  - TAAA type 2 with carotid-subclavian bypass

- **Open branch staging:** 20%
  - Using MEPs and angiography
  - Reason for open branch:
    - 86% MEP
    - 14% Endoleak
Results Endo TAAA (n=112)

- 30-day/in-hospital mortality: 10%
  - 91% alive

- Spinal cord ischemia:
  - 6% improved (all walking)
  - 1/7 cured
  - 2/7 no improvement

1.9% complete persistent paraplegia
Conclusions

• Spinal cord ischemia is still a serious problem in open and endovascular TAAA repair
• In endo TAAA, SCI seems to decrease with current protocols
• Staging is an effective way to reduce SCI in open endo TAAA
• Selective staging with MEP during branch test occlusion is associated
  – with low spinal cord ischemia rate in endo TAAA
  – more frequent staging in Crawford type 2 and 3
  – no need for staging in 80%
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No disclosures