New Developments In The Prevention And Treatment Of SCI With Open And Endo TAAA Repairs

Geert Willem Schurink
Barend Mees
Michiel de Haan
Michael Jacobs
Maastricht University Medical Center, the Netherlands
European Vascular Center Aachen-Maastricht, Germany and the Netherlands

Disclosures
• Proctor for COOK Medical

Only endovascular repair of TAAA:
• 11 publications
• 873 patients
• Transient SCI: 13% (0-31%)
• Permanent SCI: 5% (0-21%)

Strategies to prevent SCI
Open repair
– CSF drainage
– Preserve LSA and HA perfusion
– Spinal cord function monitoring
– BP management
– Staged repair

Endovasc. repair
– CSF drainage
– Preserve LSA and HA perfusion
– Spinal cord function monitoring
– BP management
– Staged repair

Strategies to prevent SCI
Open repair
– CSF drainage
– Spinal cord function monitoring
– BP management
– Staged repair
– Motor
– Intele
– Spinal

Endovasc. repair
– CSF drainage
– Spinal cord function monitoring
– BP management
– Staged repair
– Motor
– Intele
– Spinal

Preserve original inflow and stimulate alternative inflow to the collateral network around the spinal cord
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

Staging TAAA

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

SCI in endoTAAA (n=112)

- Preop. Crawford classification

<table>
<thead>
<tr>
<th>Type</th>
<th>N</th>
<th>Complete</th>
<th>Partial</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>23</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>II</td>
<td>18</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>III</td>
<td>34</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>IV</td>
<td>27</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Conclusions

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