SELECTIVE STAGING BASED ON SPINAL CORD FUNCTION MONITORING IS THE BEST WAY TO PREVENT SCI WITH TAAA/FBEVAR REPAIRS: INTRASAC PRESSURE MEASUREMENTS AND LEAVING A PATENT BRANCH MAY BE APPROPRIATE FOR SOME CASES

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

STAGED REPAIR IN ENDOTAAA

- Staging TEVAR implantation
- Creating type III endoleak
  - Sac perfusion branch
  - Leaving branch open
  - Stent between SG components
  - Don’t connect iliac limb

STAGED REPAIR IN ENDOTAAA

<table>
<thead>
<tr>
<th>Factor</th>
<th>Total (n = 40)</th>
<th>Single-stage repair (n = 20, n= 20)</th>
<th>Two-stage repair (n = 20, n= 20)</th>
<th>Simultaneously staged repair (n = 20, n= 20)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCI</td>
<td>1 (2.5)</td>
<td>1 (5.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>1.00</td>
</tr>
<tr>
<td>Time to development of SCI</td>
<td>16 (40.0)</td>
<td>3 (15.0)</td>
<td>3 (15.0)</td>
<td>2 (10.0)</td>
<td>1.00</td>
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<tr>
<td>Type of SCI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>44 (11.0)</td>
<td>9 (45.0)</td>
<td>9 (45.0)</td>
<td>5 (25.0)</td>
<td>0.33</td>
</tr>
<tr>
<td>Type of TEVAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stent between SG components</td>
<td>11 (2.8)</td>
<td>9 (45.0)</td>
<td>3 (15.0)</td>
<td>2 (10.0)</td>
<td>1.00</td>
</tr>
<tr>
<td>Don't connect iliac limb</td>
<td></td>
<td></td>
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</tr>
</thead>
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<tr>
<td>Sac perfusion</td>
<td>13 (32.5)</td>
<td>6 (30.0)</td>
<td>4 (20.0)</td>
<td>3 (15.0)</td>
<td>1.00</td>
</tr>
<tr>
<td>No Sac Perfusion</td>
<td>27 (67.5)</td>
<td>5 (25.0)</td>
<td>3 (15.0)</td>
<td>1 (5.0)</td>
<td>1.00</td>
</tr>
<tr>
<td>Temp. paraparesis</td>
<td>13 (32.5)</td>
<td>6 (30.0)</td>
<td>4 (20.0)</td>
<td>3 (15.0)</td>
<td>1.00</td>
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<tr>
<td>Paraplegia</td>
<td>27 (67.5)</td>
<td>5 (25.0)</td>
<td>3 (15.0)</td>
<td>1 (5.0)</td>
<td>1.00</td>
</tr>
</tbody>
</table>

DISCLOSURES

Proctor for COOK Medical

Kasprzak P et al. [EJVES. 2014;48(3):258-65]
STAGED REPAIR IN ENDOTAAA

General:

Can we identify patients at risk?

- Staging by only TEVAR first (type II TAAA)
- B/FEVAR:
  - Spinal cord function monitoring (MEP)
  - Last branch: 15 min balloon occlusion
  - Decision to leave branch open (MEP >50% )

MEPS DURING 1ST INTERVENTION

SEGMENTAL ARTERIES

MEPS DURING 2ND INTERVENTION

ENDOTAAA EXPERIENCE

77 patients (58♂ / 19♀)

- 37 patients with MEPs

30d-mortality: 9%

Previous aortic surgery (36%)

- Ascending/arch 2
- TAA(A): 8
- AAA 18

Crawford type TAAA (preop)

Crawford type TAAA (postop)
SPINAL CORD ISCHEMIA

SCI 11.7%

With MEPs
- 2x MEP decrease
  - After TEVAR
  - Delayed with open branch
- 3x Stable MEP
  - 1x conversion for SMA bypass
  - 2x type 1b endoleak

Without MEPs
- 4x
  - No complications

“OPEN BRANCH”-POLICY

WITH MEPS (N=10)
- MEP decrease
  - 5x SCI
  - 3x peripheral ischemia
- Stable MEP
  - Conversion SMA-bypass
  - Type 3 endoleak

WITHOUT MEPS (N=5)
- Staging in complicated procedure

“OPEN BRANCH”-POLICY

Second procedures:
- 2x not performed
  - Thrombosis CA and branch
  - Refused
- 10x uncomplicated
- 2x to-do
- Sec. procedure on 2nd day p.o. because of upper GI ischemia → paraplegia, sepsis, death

ANEURYSM SAC PRESSURE

Endoleak @ Completion angio
- unreliable MEP testing
- Pressure aneurysm sac during branch occlusion
- In case of elevated pressure: “early” completion angio

MAP – P₂ₐₐₙₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐₐ¢יה

CONCLUSIONS

- Paraplegia is the most devastating complication in treatment of TAAA.
- SCI seems related to complicated F/BEVAR procedures.
- Staging is the most promising.
- MEP can help to exclude SCI.
- MEP can be used to pick patients for selective staging.
- Aneurysm sac pressure measurements and/or angiography can confirm sac exclusion during MEP measurement.