Updated strategy for organ protection during open thoracoabdominal aortic repair

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Disclosures

I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Shareholder in a healthcare company
- Owner of a healthcare company
- Other(s)

- I do not have any potential conflict of interest
Open surgery today is not a dinosaur

Due to:

- Innovative techniques
- Constant improving results
Preoperative planning

- Difficult necks
- Aortic tortuosity

Multi-Planar Reconstruction
Tailored access

6th intercostal space
AKA identification

Useful for procedure planning and risk stratification

Melissano G, Civilini E, Chiesa R, et Al. EJVEVS 2010
MEP & SSEP

Intercostal reattachment

Aggressive critical i.c. art. (T7-L2) reimplantation

Collateral network concept

1. Small arteries in the spinal canal and paraspinous muscles

2. Inputs include the subclavian arteries, the hypogastric arteries and their branches

3. This network can increase cord nutrient from one source when another is reduced

Steal phenomenon
Distal anastomosis
Cerebro Spinal Fluid Drainage

Maximized safety of drainage
Fully automatic, Volume-controlled or Pressure-controlled CSF drainage
Controlled hypertension

MAP > 90 mmHg during aortic clamping

Chiesa R, et al. JVS 2005
Spinal Cord Ischemia

- Clamp and sew - ‘90
- + adjuncts* - Today

Svensson LG, Crawford ES, et al JVS 1993

Respect for biology
Fluid homeostasis

Viscoelastic test (ROTEM ®)

- Guide use of FFP and PLTs
- Reduce unnecessary transfusions
- Surgical bleeding/coagulopathy

Reduced surgical trauma

Limited circumferential phrenotomy
Phrenic nerve sparing
Postoperative Period

Non Invasive Ventilation reduces mortality after surgery

Cabrini, et Al. Curr Opin Anaesthesiol. 2015
• Distal aortic perfusion
• Reduced proximal hypertension and cardiac afterload

Optimal visceral perfusion

Hybrid vascular graft

- Easy sutureless anastomosis
- Artery stenosis/dissection
- Avoid graft kinking

Final result
OSR TAAA open repair
1993 - 2015: 652 cases

<table>
<thead>
<tr>
<th>Extent</th>
<th>n</th>
<th>Paraplegia/Paraparesis</th>
<th>Renal Failure</th>
<th>30-day Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>58</td>
<td>6 (10.3%)</td>
<td>1 (1.9%)</td>
<td>5 (9.6%)</td>
</tr>
<tr>
<td>II</td>
<td>66</td>
<td>10 (15.2%)</td>
<td>5 (8.4%)</td>
<td>9 (13.6%)</td>
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<tr>
<td>III</td>
<td>81</td>
<td>4 (4.9%)</td>
<td>4 (5%)</td>
<td>7 (8.6%)</td>
</tr>
<tr>
<td>IV</td>
<td>66</td>
<td>2 (3.0%)</td>
<td>3 (4.7%)</td>
<td>2 (3.2%)</td>
</tr>
<tr>
<td>Total</td>
<td>271</td>
<td>22 (8.1%)</td>
<td>13 (4.7%)</td>
<td>23 (8.5%)</td>
</tr>
</tbody>
</table>

Routinary use of adjuncts in the last 271 TAAA (2006 - 2015)
OSR TAAA open repair

2014, 84 cases
30 days mortality: 5.9%
CONCLUSIONS

Specialized high volume centers with a dedicated aortic team are able to achieve good outcomes for this surgery.
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