Mid-term results of TEVAR in complicated versus uncomplicated acute type B aortic dissection

A report from the Gore Global Registry for Endovascular Aortic Treatment (GREAT)

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Disclosure

Speaker name:
TRIMARCHI SANTI

I have the following potential conflicts of interest to report:
- Consulting: GORE WL; Medtronic, Inc
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

☐ I do not have any potential conflict of interest
Background

- The debate for treating acute type B dissection using thoracic endovascular aortic repair (TEVAR) is still objective of matter.

- This study analyzes the outcomes of TEVAR performed for complicated and uncomplicated acute type B aortic dissections (ATBAD) in the W.L. Gore’s Global Registry for Endovascular Aortic Treatment (GREAT).
• Patients from W.L. Gore’s Global Registry for Endovascular Aortic Treatment (GREAT) who underwent TEVAR for ATBAD were included and data were retrospectively analyzed.

172 pts were treated by TEVAR for ATBAD

102 were complicated (cTBAD)
70 were uncomplicated (uTBAD).
Methods

• Definition on Complicated: Dissections presenting with rapid aortic expansion determining an aneurysm, aortic rupture and/or hypotension/shock, visceral, renal, or limb ischemia, paraplegia/paraparesis, peri-aortic hematoma, recurrent or refractory pain, and refractory hypertension despite adequate medical therapy.
Methods

• Definition on Complicated:
  Dissections presenting with rapid aortic expansion determining an aneurysm, aortic rupture and/or hypotension/shock, visceral, renal, or limb ischemia, paraplegia/paraparesis, peri-aortic hematoma, recurrent or refractory pain, and refractory hypertension despite adequate medical therapy.

• Primary outcomes:
  Hospital mortality, 30-day endoleaks, stent graft migration, fracture or compression and aortic rupture.

• Re-interventions were defined:
  any invasive or minimally invasive measure related to the initial aortic procedure performed at any time following the initial procedure.

• Device related re-interventions included:
  any measure related to a deficiency of the device implanted into the aorta.

• Mid-term 3 years follow-up:
  was scheduled according to each center protocol.
Results

- Complicated patients were younger compared to uncomplicated (59.6 ± 12.7 vs 62.6 ± 11.8, P=0.012).
- Black race was more prevalent in complicated, (P=0.037).
- There was no difference in terms of comorbidities between complicated and uncomplicated patients.
The average time from onset to treatment was: 8.0 ± 8.6 days for cTBAD (median 5.5, IQR 2.0-12.0) and 6.0 ± 6.5 days for uTBAD (median 4.0, IQR 1.0-9.0; P=0.079).
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- The percutaneous approach was more prevalent in the uncomplicated group (54.3% vs 37.3%, P=0.027), while surgical cut down was more frequent in complicated pts (68.6% vs 52.9%, P=0.036).
• Procedures related to aortic branch vessels were 46 (45.1%) in cTBAD versus 15 (21.4%) in uTBAD (P=.002).
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• The LSA was covered without revascularization in a larger proportion of cases in complicated dissections (14.7% vs 8.6%, P=0.22).

• Complicated patients underwent more frequently LSA revascularization (24.5% vs 7.1%, P=0.003)
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• The mean length of stay was 14.3±10.6 (median 11, range 2-75) versus 9.8±7.9 (median 8, range 0-42) days in cTBAD versus uTBAD (p<.001).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Complicated</th>
<th>Uncomplicated</th>
<th>OR (95% CI)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedures involving</td>
<td>46/102</td>
<td>15/70 (21.4%)</td>
<td>3.01 (1.51 - 6.01)</td>
<td>0.002</td>
</tr>
<tr>
<td>LSA</td>
<td>(45.1%)</td>
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</tbody>
</table>

**LSA Management**

<table>
<thead>
<tr>
<th></th>
<th>Complicated</th>
<th>Uncomplicated</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Covered not</td>
<td>15/102</td>
<td>6/70 (8.6%)</td>
<td>-</td>
<td>0.22</td>
</tr>
<tr>
<td>revascularized</td>
<td>(14.7%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Covered revascularized</td>
<td>25/102</td>
<td>5/70 (7.1%)</td>
<td>-</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(24.5%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Covered</td>
<td>62/102</td>
<td>59/70 (84.3%)</td>
<td>-</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>(60.8%)</td>
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</tbody>
</table>

**Total Aortic Device Length, mean ± SD (range)**

<table>
<thead>
<tr>
<th></th>
<th>cTBAD</th>
<th>uTBAD</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>24.4 ± 11.9</td>
<td>26.8 ± 12.0</td>
<td>(10-73 cm)</td>
<td>0.191</td>
</tr>
</tbody>
</table>
Results

- 30-day outcomes were not significantly different between the two groups:
  - Mortality
  - Stroke or TIA
  - Spinal complications
  - Re-interventions
  - Aortic complications
  - Aortic re-intervention

<table>
<thead>
<tr>
<th>Variable</th>
<th>Complicated</th>
<th>Uncomplicated</th>
<th>OR (95% CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aortic Complication</td>
<td>9/102 (8.8%)</td>
<td>470 (5.7%)</td>
<td>1.60 (0.47 – 5.41)</td>
<td>0.449</td>
</tr>
<tr>
<td>Aortic Reintervention</td>
<td>7/102 (6.9%)</td>
<td>270 (2.9%)</td>
<td>2.51 (0.51 – 12.43)</td>
<td>0.313</td>
</tr>
<tr>
<td>Spinal Complication</td>
<td>8/102 (2.9%)</td>
<td>170 (1.4%)</td>
<td>2.09 (0.21 – 20.52)</td>
<td>0.647</td>
</tr>
<tr>
<td>Branch Vessel Complication</td>
<td>3/102 (2.9%)</td>
<td>070 (0.0%)</td>
<td>4.96 (0.25 – 97.54)</td>
<td>0.272</td>
</tr>
<tr>
<td>Cardiac Complication</td>
<td>4/102 (3.9%)</td>
<td>170 (1.4%)</td>
<td>2.82 (0.31 – 25.75)</td>
<td>0.650</td>
</tr>
<tr>
<td>Stroke</td>
<td>2/102 (2.0%)</td>
<td>170 (1.4%)</td>
<td>1.38 (0.12 – 15.52)</td>
<td>1.000</td>
</tr>
<tr>
<td>Pulmonary Complication</td>
<td>3/102 (2.9%)</td>
<td>470 (5.7%)</td>
<td>0.50 (0.11 – 2.31)</td>
<td>0.445</td>
</tr>
<tr>
<td>Infectious Complication</td>
<td>3/102 (2.9%)</td>
<td>470 (5.7%)</td>
<td>0.50 (0.11 – 2.31)</td>
<td>0.445</td>
</tr>
<tr>
<td>GI Complications</td>
<td>4/102 (3.9%)</td>
<td>270 (2.9%)</td>
<td>1.39 (0.25 – 7.79)</td>
<td>1.000</td>
</tr>
<tr>
<td>Renal Complication</td>
<td>2/102 (2.0%)</td>
<td>470 (5.7%)</td>
<td>0.33 (0.06 – 1.85)</td>
<td>0.226</td>
</tr>
<tr>
<td>Death</td>
<td>3/102 (2.9%)</td>
<td>170 (1.4%)</td>
<td>2.09 (0.21 – 20.52)</td>
<td>0.647</td>
</tr>
</tbody>
</table>
• No significant differences between groups in terms of overall survival in cTBAD vs uTBAD at three years (79.1±20.8% vs 90.4±9.5%, P=0.138)
Results

- No significant difference between groups in terms of aortic complication-free survival in cTBAD vs uTBAD at three years (62.9±37.1% vs 70.6±29.3%, P=0.696)
**Central message**

- Perioperative complication and mortality rates were equally low for both.
- Similarly, positive was the mid-term outcome.
Perspective statement

• The real-world registry data provided in this study supports the endovascular repair as first-line strategy for treating complicated type B dissections.

• However, in the absence of level A evidence from RCT, results of uTBAD patients’ cohort treated with TEVAR from registries are of importance for better understanding its related risk and benefit.
Thanks for Your Attention

Cà Granda Ospedale Maggiore Milano 1473