Midterm outcome of the Covered Endovascular Reconstruction of the Aortic Bifurcation (CERAB) technique for aortoiliac occlusive disease

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Disclosure

Speaker name:
Kim Taeymans

I have the following potential conflicts of interest to report:

✓ I do not have any potential conflict of interest
INTRODUCTION
Aorto-iliac occlusive disease

Type C lesions:
- Bilateral CIA occlusions
- Bilateral EIA stenoses 3–10 cm long not extending into the CFA
- Unilateral EIA stenosis extending into the CFA
- Unilateral EIA occlusion that involves the origins of internal iliac and/or CFA
- Heavily calcified unilateral EIA occlusion with or without involvement of origins of internal iliac and/or CFA

Type D lesions:
- Infrarenal aortoiliac occlusion
- Diffuse disease involving the aorta and both iliac arteries requiring treatment
- Diffuse multiple stenoses involving the unilateral CIA, EIA, and CFA
- Unilateral occlusions of both CIA and EIA
- Bilateral occlusions of EIA
- Iliac stenoses in patients with AAA requiring treatment and not amenable to endograft placement or other lesions requiring open aortic or iliac surgery
Covered
Endovascular
Reconstruction
Aortic
Bifurcation

Covered endovascular reconstruction of aortic bifurcation (CERAB) technique: a new approach in treating extensive aortoiliac occlusive disease.

Goverde PC¹, Grimme FA, Verbruggen PJ, Reijnen MM.
Patients

- 130 patients
- Treated between February 2009 – July 2016
- In 2 hospitals
  - Rijnstate Arnhem (Netherlands)
  - ZNA Vascular Clinic (Belgium)
- Retrospective analysis
Follow up

- Clinical assessment
- Duplex ultrasound
- ABI
RESULTS
<table>
<thead>
<tr>
<th>Patients (n = 130)</th>
<th>Mean (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>61.0 (36-81)</td>
</tr>
<tr>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Men</td>
<td>69</td>
</tr>
<tr>
<td>TASC II - D</td>
<td>89,2</td>
</tr>
<tr>
<td>Risk factors</td>
<td></td>
</tr>
<tr>
<td>Current smoking</td>
<td>100</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>46</td>
</tr>
<tr>
<td>Hypertension</td>
<td>96</td>
</tr>
<tr>
<td>Hyperlipidemia</td>
<td>121</td>
</tr>
<tr>
<td>Cardiac disease</td>
<td>61</td>
</tr>
<tr>
<td>Pulmonary disease</td>
<td>51</td>
</tr>
<tr>
<td>Carotid disease</td>
<td>26</td>
</tr>
<tr>
<td>Renal disease</td>
<td>25</td>
</tr>
<tr>
<td>Rutherford category</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>84</td>
</tr>
<tr>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>
## Procedural results

### Technical success rate

<table>
<thead>
<tr>
<th>Access</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percutaneous</td>
<td>87</td>
<td>66.9%</td>
</tr>
<tr>
<td>Open</td>
<td>20</td>
<td>15.4%</td>
</tr>
<tr>
<td>Open + percutaneous</td>
<td>23</td>
<td>17.7%</td>
</tr>
</tbody>
</table>

- **Technical success rate:** 96.9%

### Procedural complications

<table>
<thead>
<tr>
<th>Complication</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissection</td>
<td>6</td>
</tr>
<tr>
<td>Bleeding</td>
<td>2</td>
</tr>
<tr>
<td>Rupture</td>
<td>2</td>
</tr>
<tr>
<td>Dislocation of stent</td>
<td>1</td>
</tr>
<tr>
<td>Stent deformation</td>
<td>1</td>
</tr>
<tr>
<td>Thrombus formation</td>
<td>2</td>
</tr>
</tbody>
</table>
Clinical outcome

• Minor complications 33.1%
  • Hematoma, ecchymosis, leg edema, false aneurysm

• Major complications 7.7 %
  • Stent collapse
  • Occlusion AFC ( closure device )
  • Thrombosis
  • Acute on chronic renal insufficiency
Clinical outcome

- 30 day mortality 0 %
- Hospital stay
  - 54.1% → 1-2 days
  - 29.5% → 3-5 days
→ Median preoperatively: 3, median after 24 and 36 months: 0
Patency

Calculated patency rates

Percent survival

Time (months)

Primary patency (PP)
No. At Risk | 126 | 91 | 79 | 69 | 56 | 47 | 37 | 82.1 |
Patency (%) | 100 | 90.4 | 86.2 | 83.9 | 83.9 | 82.1 | 82.1 | 82.1 |
SE (%) | 0.0 | 2.8 | 3.3 | 3.6 | 3.6 | 4.0 | 4.0 | 4.0 |

Prim. Ass. Patency (PAP)
No. At Risk | 126 | 95 | 82 | 70 | 57 | 48 | 38 | 86.8 |
Patency (%) | 100 | 95.5 | 91.1 | 88.7 | 88.7 | 86.8 | 86.8 | 86.8 |
SE (%) | 0.0 | 2.0 | 2.9 | 3.3 | 3.3 | 3.7 | 3.7 | 3.7 |

Secondary patency (SP)
No. At Risk | 126 | 98 | 85 | 74 | 61 | 52 | 41 | 97.0 |
Patency (%) | 100 | 99.2 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
SE (%) | 0.0 | 0.8 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |
Conclusion

• Midterm results are very promising regarding patency and clinical improvement
• Safe and feasible alternative for open surgery
• Need for adapted/dedicated devices for lower procedure cost and time
• Need for long term follow and larger population
Thank you for your attention
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