Tips and tricks of the CERAB technique

Koen Deloose, MD
BRAVISSIMO Study: 24-month primary patency

<table>
<thead>
<tr>
<th>TASC</th>
<th>baseline</th>
<th>12MFU</th>
<th>24MFU</th>
<th>timepoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>132</td>
<td>113</td>
<td>95</td>
<td>patients at risk</td>
</tr>
<tr>
<td>B</td>
<td>58</td>
<td>51</td>
<td>39</td>
<td>patients at risk</td>
</tr>
<tr>
<td>C</td>
<td>55</td>
<td>43</td>
<td>35</td>
<td>patients at risk</td>
</tr>
<tr>
<td>D</td>
<td>80</td>
<td>68</td>
<td>51</td>
<td>patients at risk</td>
</tr>
</tbody>
</table>

P = 0.516
### Predictors for restenosis (patency failure)

**Univariate regression analysis**
(Cox proportional hazards model)

**Multivariable regression analysis**

<table>
<thead>
<tr>
<th>Obs</th>
<th>Parameter</th>
<th>ProbChiSq</th>
<th>Hazard Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Kissing Stent (yes vs. no)</td>
<td>0.0012</td>
<td>3,272</td>
</tr>
<tr>
<td>B</td>
<td>Obesity (yes vs. No)</td>
<td>0.0109</td>
<td>2,490</td>
</tr>
</tbody>
</table>

**TASC classification** nor lesion length was (independently) predictive of restenosis.
Kissing with conventional stents doesn’t work optimally
Kissing with conventional stents doesn’t work optimally

Geometrical disturbances + Chronical physical irritation

↓

Nidus Thrombus formation

↓

Immature mesenchymal formation

↓

Intimal hyperplasia

The correct technique for aortic bifurcation lesions

Covered Endovascular Reconstruction Aortic Bifurcation

With the courtesy of Peter Goverde, ZNA, Belgium
...the reasons to prefer covered stents in aorto-iliac bifurcation area....

- Avoidance of geometrical disturbances
- Avoidance of “nidus” formation
- Avoidance of physical irritation
- Perforation is not an issue
- Prevention of embolization
The correct technique: Access & Recanalization

- Long protective sheaths 9 and 7 F (23 cm) both CFA
- 0.035” workhorse wires
- Low profile 4-5F supporting catheters

With the courtesy of Peter Goverde, ZNA, Belgium
The correct technique: sizing

- PRE (CT) and PER (QVA)-PROCEDURAL SIZING !!!

**Diameters**
- Landing zone aorta
- Bifurcation
- Landing zones iliacs

**Lengths**
- Aorta
- Iliacs
The correct technique: sizing

- PER-PROCEDURAL QVA-SIZING!

15 + 15 + 30 RULE

Proximal main stentgraft end
Overlap main – side stentgrafts
Distal main stentgraft end
Aorto-iliac bifurcation

Atrium Advanta V12 (ex 12-61) Maquet°
High adaptiveness
The correct technique: main stentgraft introduction

- 0.035” supportive wire
- Introduction of the Atrium Advanta V12 – 12 mm

With the courtesy of Peter Goverde, ZNA, Belgium
The correct technique: “Conicalization”

- Introduction of a XL Latex balloon in the proximal main stentgraft Atrium Advanta V12- 12mm
- Manual inflation of the XL balloon up to “healthy” proximal aortic sizes: conicalization

With the courtesy of Peter Goverde, ZNA, Belgium
The correct technique: Re-pass main stentgraft by second guidewire

- 0.035” steerable workhorse wire + supporting catheter
- Check of intraluminal tract by pigtail catheter
The correct technique: positioning of 2 iliac stentgrafts in kissing formation

- 0.035” supportive workhorse wires
- 2 stentgrafts Atrium Advanta V12 (Maquet) > iliac sized

With the courtesy of Peter Goverde, ZNA, Belgium
The correct technique: simultaneous inflation of 2 iliac stentgrafts

- 0.035” supportive workhorse wires
- 2 stentgrafts Atrium Advanta V12 (Maquet) > iliac sized
The correct technique: final result

With the courtesy of Peter Goverde, ZNA, Belgium
Extension to more complex cases...

- Midaortic / juxtarenal occlusive disease
Extension to more complex cases...

- Midaortic / juxtarenal occlusive disease: Chimney-CERAB
  - Bi-femoral access (aorto-iliac)
  - Bi-brachial access (renal)

Atrium Advanta V12 (Maquet)
Extension to more complex cases...

- Midaortic / juxtarenal occlusive disease: Chimney-CERAB

Ch-CERAB  Classic-CERAB  Final result
Conclusion

• BMS (BE & SE) offer good to excellent iliac patency results, except for TASC D, kissing formation, where there is room for improvement

• Covered stents can realize this final improvement if used in a correct way

• The correctly sized and meticulous performed CERAB technique answers these expectations

• The more experience, the more complex cases like chimney-CERAB, you can perform.