Non-calcified aorto-iliac steno-obstructive lesions are associated with worse results following endovascular treatment

A Sonetto, M Abualhin, M Gargiulo, GL Faggioli, A Stella

Vascular Surgery – University of Bologna
Disclosure

Speaker name:
Alessia Sonetto

I have the following potential conflicts of interest to report:

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

I do not have any potential conflict of interest
The continuous improvements of materials and operators skills led to the use of the endovascular approach as first-line therapy for aorto-iliac obstructive disease.  

Endovascular treatment (EVT) of TASC C-D aorto-iliac lesions showed a similar outcome to surgical treatment.

Major complications after aorto-bifemoral bypass is approximately 16% and operative mortality is 4.1%. Complications after EVT range from 0-16.3% and procedural mortality is extremely rare. Considering less morbidity and mortality in EVT and the disadvantage of patency in extra-anatomical bypass, EVT as the first strategy may be an acceptable treatment choice.
Background

- Different technical approaches: bare stents (self-balloon expandable), covered stents, reconstruction with endoprosthesis.

- **Severe calcification** was associated with increased **risk of technical failure**.

*Kim et al. J Vasc Surg 2011*
Purpose of study

To evaluate Technical Success (TS) and outcome of endovascular treatment with aortic stenting (AS) in aorto-iliac steno-obstructive disease and assess plaque nature impact on outcome.
Methods

• June 2004 to June 2017
• Retrospective study of prospectively maintained data base.

• **Inclusion criteria:**
  • Steno-obstructive aorto-iliac disease
  • Treated by aortic stenting ± iliac stenting
• Patient's demographics and characteristics were assessed.
• Patients’ lesions were evaluated by angioCT scan (for aorto-iliac district) and Duplex ultrasound (for iliac and femoro-popliteal disease).
Methods

• Lesions were classified according to:
  • Aorto-iliac topography (aortic disease – aorto-iliac disease).
  • Quality of the plaque

• Follow up: clinical examination and DUS at 3, 6, and 12 months, and then yearly. In case of non-conclusive DUS, angioCT scan was prescribed.
Methods

• **Endpoints:**
  - *Primary* (peri-operative): Technical and Clinical Success

• **Statistics:**
  - Descriptive: frequency statistics were used for population characteristics.
  - Kaplan-Meier analysis was performed to define endpoints.
  - Kaplan-Meier analysis with Log-Rank test was performed to compare the different type of plaques with patency.
## Results

<table>
<thead>
<tr>
<th>Patients N°</th>
<th>Mean age</th>
<th>M/F %</th>
<th>Coexisting infra-inguinal disease</th>
<th>Rutherford</th>
</tr>
</thead>
</table>
| 45          | 61±10.2 years | 60/40  | 24.4%                             | - Stage 3: 22.2% 
- Stage 4: 28.9% 
- Stage 5: 4.4% |
20% of patients had < 3 risk factors
80% of patients had ≥ 3 risk factors
Results

• Aorto-iliac Lesions:
  - Isolated aortic steno-obstructions 33.4%
  - Aorto-iliac steno-obstructions 66.6%
    - Aorto-iliac stenosis 64.5%
    - Aorto-iliac occlusion 35.5%
Results

• Aortic stents:
  - Self-expandable 53.3%
  - Balloon-expandable 42.2%
  - Covered stents 4.4%

• Associated iliac stenting in 68.9% of patients
Results

AngioCT characteristics of Plaque:

- Non calcified (<10% calcifications) 15.6%
- Mixed (calcifications 10%-80%) 60%
- Calcified (>80% calcifications) 24.4%
Results

Peri-operative results:

• Technical Success  100% (even in calcified lesions)
• Clinical Success  95.5%

Follow-up results:

• Mean follow-up: 69.8 months
• At 5 years:

<table>
<thead>
<tr>
<th></th>
<th>PP</th>
<th>SP</th>
<th>S</th>
<th>LS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 year</td>
<td>84.4%</td>
<td>91.3%</td>
<td>88.8%</td>
<td>93.4%</td>
</tr>
</tbody>
</table>
Results

• Primary Patency at 12 months, according to aorto-iliac topography and plaque nature:

<table>
<thead>
<tr>
<th>1 year</th>
<th>Non-calcified</th>
<th>Mixed</th>
<th>Calcified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aortic</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Aorto-iliac</td>
<td>71.4%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

• Non calcified plaque resulted to be an independent risk factor for Primary Patency loss (P<.001).
Conclusions

- Endovascular treatment of aorto-iliac steno-obstructive disease provides excellent perioperative (technical and clinical) results.

- The follow-up results seem to be related to the topography of aortic disease (aortic or aorto-iliac) and the quality of the aorto-iliac plaques.

- Soft plaque seems to be related to a 12-month loss of Primary Patency.
Non-calcified aorto-iliac steno-obstructive lesions are associated with worse results following endovascular treatment

A Sonetto, M Abualhin, M Gargiulo, GL Faggioli, A Stella