Vessel Prep May Cause Increased Distal Embolization And Be Harmful: How To Manage This Problem

Mark W. Mewissen, MD
Director, Endovascular Services
Aurora Healthcare, St. Luke’s Medical Center
Milwaukee, WI

Aortogram and runoff angiography Left Leg Critical Ischemia

- Endovascular treatment
- Many options
- Risk of distal embolization?

Lesion types and device characteristics that predict distal embolization during percutaneous lower extremity interventions

Table V: Embolization based on TASC Inter-Society Consensus (TASC)

<table>
<thead>
<tr>
<th>TASC</th>
<th>Lesion</th>
<th>Device</th>
<th>Embolization</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/B</td>
<td>4/20</td>
<td>6/20</td>
<td>20/60</td>
</tr>
<tr>
<td>C/D</td>
<td>12/25</td>
<td>6/25</td>
<td>14/25</td>
</tr>
</tbody>
</table>

Table VI: Incidence of embolization based on lesion modality

<table>
<thead>
<tr>
<th>Lesion</th>
<th>Embolization</th>
</tr>
</thead>
<tbody>
<tr>
<td>TASC A/B</td>
<td>5 (12.5%)</td>
</tr>
<tr>
<td>TASC C/D</td>
<td>3 (15.0%)</td>
</tr>
</tbody>
</table>

Embolic protection may be considered for certain atherectomy devices, TASC C and D lesions, as well as chronic total occlusions and ISR

Disclosure Information

- Consultant:
  - Endologix
  - Medtronics
  - Gore
  - Cook

Journal of Invasive Cardiology

Safety and Effectiveness of the Nav-6 Filter in Preventing Distal Embolization During Jetstream Atherectomy of Intraginal Peripheral Artery Lesions.

Bananje A, Sarode K, Mohammad A, Brilakis ES, Bananje S, Shannas GA, Shannas NW

Conclusion

- DE is highly prevalent during peripheral artery intervention and occurs during treatment of a wide variety of lesions encountered in clinical practice, reinforcing the potential need for distal embolic protection, especially with atherectomy.
**DCB focus:**
- Right coating morphology
- Right excipient
- Optimal drug dose

**How To Prep Vessels?**

**Distal Embolization?**

**DCB and Bail-out BMS**

- Despite the efforts to leave nothing behind after endovascular treatment of the SFA, there is still a considerable number of lesions that require bailout stenting (20-40%)
  - Popularity of Zilver PTX
  - Eluvia (EU)

**Vessel Prep and distal embolization??**

- Combine properties of BMS and DCB?

**Self-Expanding Nitinol Stents in the FP Segment:**
Primary Stenting Followed by DCB (Proof of concept)
Mewissen et al

- No Pre-dilatation
- Post-dilate within the stent margin
- Low risk of embolization
- Debris “trapped” behind stent

**2009**

**Primary Nitinol Stenting for Femoropopliteal Disease**
Mark W. Mewissen, MD
The Vascular Center, St. Luke’s Medical Center, Milwaukee, Wisconsin, USA.
**Primary Stenting Followed by DCB**

Procedural Lesion Characteristics

<table>
<thead>
<tr>
<th>Patients</th>
<th>n = 62</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesion length (cm)</td>
<td>16.1 ± 8.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TASC</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>21.8%</td>
</tr>
<tr>
<td>B</td>
<td>18.2%</td>
</tr>
<tr>
<td>C</td>
<td>16.4%</td>
</tr>
<tr>
<td>D</td>
<td>43.6%</td>
</tr>
</tbody>
</table>

Technical Success (Distal Embolization: DE) 100% (NO DE)

**Primary Stenting Followed by DCB**

Primary Patency rate per Kaplan-Meier estimates

<table>
<thead>
<tr>
<th>Time</th>
<th>PP%</th>
<th>SE%</th>
</tr>
</thead>
<tbody>
<tr>
<td>6m</td>
<td>95.4</td>
<td>3.2</td>
</tr>
<tr>
<td>12m</td>
<td>89.1</td>
<td>6.8</td>
</tr>
</tbody>
</table>

**Conclusion**

- **DCB**
  - Requires aggressive vessel prep
  - Distal embolization post vessel prep in unknown
  - Bail-out stenting remains significant
- **DCS**
  - Primary: very low risk of DE
  - Zilver PTX
  - Upcoming new stents: Eluvia etc…
- **Combination BMS and DCB**
  - Merits larger study?