How to prep vessels for endovascular treatment with BMSs, DESs, DCBs: value of prolonged and high pressure balloon inflations, scoring balloons and atherectomy

New York City, November 15th, 2017
Erwin Blessing, MD, FESC

Why and how to prep the vessel?

Optimizing PTA with prolonged balloon inflations reduces dissection severity and rate and need for further intervention

Peripheral PTA: Effect of Short vs Long Balloon Inflation Times on the Morphologic Results

<table>
<thead>
<tr>
<th>Inflation Time (sec)</th>
<th>Major dissection (grades 3 or 4)</th>
<th>Minor or no dissection (grades 1 and 2)</th>
<th>Further interventions (Stent, repeat dilation, dilation with larger diameter)</th>
<th>Residual stenosis (&gt;30%)</th>
<th>Complication (embolization, thrombosis)</th>
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<tbody>
<tr>
<td>30</td>
<td>16</td>
<td>21</td>
<td>20</td>
<td>12</td>
<td>1</td>
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<tr>
<td>180</td>
<td>5</td>
<td>32</td>
<td>9</td>
<td>5</td>
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• Inflation times of 180 seconds improve immediate infrainguinal PTA results vs. a short dilation strategy
• Significantly fewer major dissections and a modest reduction of residual stenoses are observed

Why and how to prep the vessel?

Primary Patency (K-M) by Percent Compression/Elongation at 12 months

<table>
<thead>
<tr>
<th>Compression/Elongation</th>
<th>n=6</th>
<th>n=38</th>
<th>n=39</th>
<th>n=26</th>
<th>n=74</th>
<th>n=22</th>
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<tbody>
<tr>
<td>Moderate (21-40%)</td>
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<tr>
<td>Minimal (11-20%)</td>
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<td>Nominal (±10%)</td>
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<td>Severe (&gt;40%)</td>
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PROPER SIZING, PREPARATION, AND DEPLOYMENT TECHNIQUE RESULT IN EXCELLENT PATENCY RATES

High patency rates are demonstrated in cases where appropriate implant selection, vessel preparation, and deployment technique are used.

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Primary Patency (K-M) by Percent Compression/Elongation at 12 months

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<th>Compression/Elongation</th>
<th>83.3%</th>
<th>87.6%</th>
<th>50.5%</th>
<th>78.7%</th>
<th>74.4%</th>
<th>97.5%</th>
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Conflicts of interest

None
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Plaque Scoring in calcified SFA

Insights from the PANTHER Registry

Supporting the role of plaque scoring for vessel prep in calcific lesions
and the hypothesis that degree of calcium does not predict patency

- ASE Technical Success* = 100% (w/out pre-dil)
- Overall Primary Patency = 81.2% (69/85)

* successful scoring = ability to cross the lesion and inflate ASC at least at NP w/out balloon rupture

Primary Patency (KM)
per degree of calcification

Primary Patency (KM)
per treatment strategy

Restenosis
Silverhawk™
After Silverhawk™
After In.Pact™
Admiral

Case example directional atherectomy

15.11.2017
Why and how to prep the vessel?

Case example directional atherectomy

18 months follow up

Why and how to prep the vessel?

DAART (Definitive AR)

Patency at 12 months

Why and how to prep the vessel?

Case example orbital atherectomy

Why and how to prep the vessel?

OPTIMIZE:
RCT For OAS+DCB vs. DCB Alone
In BTK Lesions

Study Details:
- Pilot study
- Prospective, 1:1 Randomization
- Below the knee lesions
- 2-year follow-up

Active Sites:
- Austria (Prof. Brodmann/Deutschmann & Dr. Werner)
- Germany (Prof. Zeller, Prof. Tepe, Prof. Andrassy, Prof. Blessing, Prof. Scheinert)
- Switzerland (Dr. Banyai)

Purpose: Demonstrate the ability of the OAS to prepare calcified BTK lesions for optimal DCB deployment

Conclusions

- Lesion preparation (prolonged inflation, high pressure dilatation, scoring balloon angioplasty, lithoplasty, debulking etc.) gains increasing recognition
- DCBs work less well in heavily calcified lesions
- Debubling plus DCB offers a safe and effective treatment option in selected cases ("no stent zones", bifurcations, young patients, severely calcified lesions etc.)
- Lesion preparation with scoring balloons might offer a (less expensive) alternative to debubling devices also for calcified lesions