Managing Calcification: SFA-Pop

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Disclosure

Speaker name:

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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
SFA and Popliteal Artery

- All arteries have radial distension with pulsatile blood flow
- SFA and popliteal artery – torsion, bending, pinching, axial shortening, and lengthening
- Numerous challenges already... without calcification!

Managing Calcification in the SFA/Pop

- Understand calcium *will* prevent effective DCB use
- Calcium will lead to a high rate of recoil and dissection
- What are methods to be successful in this vascular bed?
  - Recognize and classify the lesion
  - Understand best options in your patient
  - Identify *your* techniques and options that have been successful
Atherectomy

• VIVA REALITY Trial (presented at VIVA 2020)
• Krishna Rocha-Singh- PI
  • Directional Atherectomy and DCB
  • Lesion length 179.36+/−81.4 mm
  • Calcium Severity - PACSS Score Grade 4- 67.6%
  • 76.7% 12-month primary patency
  • 92.6% 12-month freedom from CD-TLR
  • Distal embolization 12.8%
Atherectomy

• Effective at debulking
• Very effective at focal lesions
• Caution with disadvantaged run-off and need distal embolic protection
## Atherectomy Devices

<table>
<thead>
<tr>
<th></th>
<th>Jetstream™ Atherectomy System (Boston Scientific)</th>
<th>Peripheral Rotablator™ Rotational Atherectomy System (Boston Scientific)</th>
<th>Diamondback 360™, Stealth 360™ Atherectomy System (Cardiovascular Systems, Inc)</th>
<th>SilverHawk™, TurboHawk™ Plaque Excision System (Covidien)</th>
<th>Turbo-Elite™ Laser Atherectomy Catheter (Spectranetics)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Front-Cutting</strong></td>
<td>✓</td>
<td>✓</td>
<td>N/A</td>
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<tr>
<td><strong>Differential Cutting</strong></td>
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<td>✓</td>
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<tr>
<td><strong>Active Aspiration</strong></td>
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<tr>
<td><strong>Concentric Lumens</strong></td>
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<tr>
<td><strong>Lesion Morphology:</strong></td>
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<tr>
<td>Calcium</td>
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<tr>
<td>Soft/Fibrotic Plaque</td>
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<td>Thrombus</td>
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Intravascular Lithotripsy (IVL)

- Shockwave Medical
- Benefits- low inflation pressure of balloon
- Fractures both superficial and deep calcium
- Sonic pressure waves generated allow for this to be a safe procedure
IVL

• DISRUPT PAD III Gray and Tepe PI (Presented at VIVA 2020)
  • Largest randomized trial of calcified vessels
  • 306 patients randomized to PTA vs IVL
  • 129 mm average calcified length
  • 79% reduction in dissection vs PTA
  • 75% reduction in provisional stenting vs PTA
  • Appears to be a solid choice for vessel prep for DCB
Scaffolding in SFA and Popliteal Artery

• Standard Nitinol stents are prone to compression
• Woven nitinol stents (Supera) more resistant to compression
Supera stent and compression

Graph showing force (lbs/mm) versus deflection (mm) for Superia® 5.5 x 100 mm, Superia® 6.5 x 100 mm, and Standard Nitinol Stents 6.0 x 100 mm. The graph highlights that Superia stents have greater than 4x compression resistance compared to standard Nitinol stents.

Images showing physical samples of the Superia Stent and Laser-Cut Stent.
Supera in Severe Calcium

**SUPERB Data - Severe Calcification**

<table>
<thead>
<tr>
<th>% of Lesions with Severe Calcification (SUPERB Trial)</th>
<th>45% (n=118)</th>
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<tr>
<td>Patency (VIVA 12 months)</td>
<td>89%</td>
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**Freedom from TLR % Over Time in Severe Calcium**

- 12 months: 95%
- 24 months: 92%
- 36 months: 88%
Supera in Calcified Lesions
Conclusions

• SFA/Pop
• Numerous options available
• Lessons learned:
  • Vessel prep is key to stent and DCB success
  • IVL is very promising modality that appear to have the safety factor
  • Scaffolding-Supera stents over standard laser cut nitinol stents
  • Atherectomy is always an option