From research to practice: How does atherectomy fit in my treatment algorithm?

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Disclosure

Speaker name:
Grigorios Korosoglou...............................................................

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
Why debulk using atherectomy devices?

Atherectomy removes atherosclerotic / calcific tissue similar to surgical techniques, resulting in lumen gain without barotrauma.

Simultaneously increasing drug delivery to the vessel wall.

Decreasing the chance for dissection, avoiding additional stent placement ‘leave nothing behind’.

Facilitating low pressure balloon angioplasty.
Portfolio debulking options (overview)

- Directional Atherectomy
- Rotational Atherectomy
- Rotational & directional Atherectomy
- Excimer Laser
- Orbital Atherectomy
- Jetstream
- Rotablation
- Phoenix
Atherectomy using the Phoenix device

The cutter is rotated at high speed (10,000 to 12,000 rpm)

**Phoenix 2.4mm deflecting catheter**
- Minimum Introducer sheath 7fr
- 3.0 - 7.0 mm vessels
- OTW system – 127cm working length (straight)

**Table**

<table>
<thead>
<tr>
<th>Catheter Size (mm)</th>
<th>Introducer Size (F)</th>
<th>Working Length (cm)</th>
<th>Guidewire Diameter (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.8 tracking</td>
<td>5</td>
<td>130</td>
<td>0.014</td>
</tr>
<tr>
<td>2.2 tracking</td>
<td>6</td>
<td>130</td>
<td>0.014</td>
</tr>
<tr>
<td>2.4 deflecting tip</td>
<td>7</td>
<td>130</td>
<td>0.014</td>
</tr>
</tbody>
</table>

Figure 2. The Phoenix Atherectomy System, shown with the catheter inserted into the handle drive unit. No external, offtable components are required.

Figure 3. Magnified view of the front-cutting blade located on the distal tip of the Phoenix Atherectomy System.
## Experience with the Phoenix atherectomy device

<table>
<thead>
<tr>
<th></th>
<th>All-comers (n=109)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (yrs.)</strong></td>
<td>76±11</td>
</tr>
<tr>
<td><strong>Diabetes mellitus</strong></td>
<td>51 (51%)</td>
</tr>
<tr>
<td><strong>Ischemic rest pain or ulcerations (RF 4-6)</strong></td>
<td>64 (59%)</td>
</tr>
<tr>
<td><strong>TASC C/D</strong></td>
<td>98 (90%)</td>
</tr>
<tr>
<td><strong>Bilateral calcifications (PACSS score ≥3)</strong></td>
<td>85 (78%)</td>
</tr>
<tr>
<td><strong>Procedural success rate</strong></td>
<td>108 (99%)</td>
</tr>
<tr>
<td><strong>Stent placement</strong></td>
<td>7 (6%)</td>
</tr>
<tr>
<td><strong>Perforation or dissection</strong></td>
<td>1 (1%)**</td>
</tr>
<tr>
<td><strong>Peripheral embolization</strong></td>
<td>5 (5%)***</td>
</tr>
</tbody>
</table>

* Procedural success: Residual stenosis <30% with Phoenix plus adjunctive therapy.
** Requiring implantation of a Viabahn.
*** In all 5 cases, minor embolizations (all remaining asymptomatic) were observed without peri-procedural vessel occlusion. Embolized tissue could be retrieved in all cases by catheter aspiration.
Clinical case 1

♂, 74 yrs., RF 3
Clinical case I

♂, 74 yrs., RF 3
Clinical case II

♂, 56 yrs. RF 3

No deflection  Half deflection  Full deflection
Clinical case II

♂, 56 yrs. RF 3

Baseline
After 7F Phoenix
DCB (2atm)
Final result
Clinical case III

♂, 69 yrs., RF 3
Clinical case III

♂, 69 yrs., RF 3

6F Phoenix

Angiosculp scoring balloon

Final result after Phoenix, Angiosculp & DCB
Evaluating patient characteristics and lesion anatomy, complexity and calcification

- Younger patients. Convoy with the ‘leave nothing behind’ concept. Preserve bypass landing zones.
- Complex TASC C/D, strongly calcified non-occlusive lesions (PACSS score ≥3). Long diffuse non-occlusive disease.
- Occlusive lesions that can be passed by an intraluminal approach (antegrade or retrograde).
- No-stent zones (common femoral and popliteal artery).
- Lesions, where stent placement is allowed or perforation may be difficult to handle (iliac arteries).
- Occlusive lesions that cannot be passed by an intraluminal approach.
- Less complex lesions with low or no calcification grade.

Consider atherectomy
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