Present Status of Atherectomy Devices for Lower Limb Ischemia: Advantages of the Different Devices: An Interventionalist’s View

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Disclosure Statement of Financial Interest

Within the past 12 months, I or my spouse/partner have had a financial interest/arrangement or affiliation with the organization(s) listed below.

- **Affiliation/Financial Relationship**
  - Company
  - Consulting Fees/Honoraria: Boston Scientific, Medtronic, Abbott, Cordis, Bard Peripheral Vascular
  - Research Support: WL Gore
  - Scientific Advisory/stock options: Angi life, Reflex, Elixir, Endoluminal Sciences, Stryker, PQ Bypass, Shockwave Medical

Where Do We Stand With Atherectomy?

- Continued evolution and improvement of devices
- Niche applications (Calcium, thrombus containing lesions, instent restenosis, "non-stent zones")
- Limited good quality data
- Excellent reimbursement in US (office based labs) driving usage
- Possibility of Atherectomy plus DCB

Device Evolution

Atherectomy Devices

<table>
<thead>
<tr>
<th>Device Name</th>
<th>Source</th>
<th>Lesion Morphology</th>
<th>Calcium</th>
<th>Soft/Fibrotic Plaque</th>
<th>Thrombus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jetstream™ Atherectomy System</td>
<td>Boston Scientific</td>
<td>✗</td>
<td>✗</td>
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<tr>
<td>Diamondback 360™, Stealth 360™ Atherectomy System</td>
<td>Cardiovascular Systems, Inc</td>
<td>✗</td>
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<tr>
<td>Hawk One™, TurboHawk™ Plaque Excision System</td>
<td>Medtronic</td>
<td>✗</td>
<td>✗</td>
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<tr>
<td>Turbo-Elite™ Laser Atherectomy Catheter</td>
<td>Spectranetics</td>
<td>✗</td>
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</tbody>
</table>

Excimer Laser Technical Improvements:

- New Catheter Designs – Turbo Elite
- Turbo Tandem
- 0.9 mm
- Cross-Pilot support catheter
- Saline Flush
- Slow Ablation Technique
Potential Applications

- Debunking long occlusions
- Instent restenosis
- Thrombus containing lesions

EXCITE ISR Trial

Primary Patency

Product-Limit Survival Estimates

Days from Index Procedure

Survival Probability

$ p < 0.005 $
Clinical Application
- Heavily calcified and non-dilatable lesions

Dealing with Calcification
- 2.25 mm Crown
  - 50% increase in rotational speed (8,000 – 12,000 RPM)
  - More robust drive shaft
  - Modified blade design with 4 contoured blades
  - Better crossing profile
  - Simplified cleaning

HawkOne™ Directional Atherectomy System

Potential Applications
- Ostial lesions
- Common femoral lesions
- Eccentric, bulky plaque
- Calcified lesions
- Instent restenosis

Common Femoral Artery
JETSTREAM™ Systems
- Rotational/differential cutting tips
- Aspiration ports collect plaque & thrombus
- .014GW / 7F sheath compatible

JETSTREAM XC (eXpandable Cutter) System
- 135 cm OTW
- Two sizing options in a single device

JETSTREAM SC (Single Cutter) System
- 145 cm OTW
- Single Cutter technology for tortuosity

Where Do We Stand?
- Better atherectomy devices available
- Device specific advantages for certain lesion subsets
- More options for heavily calcified lesions
- These are expensive devices
- Limited good quality data
- Usage driven by favorable reimbursement