Lesion Specific Solution of Atherectomy Devices For Femoro-popliteal Diseases

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Choice of Lower Limb Atherectomy Device in Taiwan

- Laser
- Rotablator
- Rotarex
- Turbohawk LS-M
- Turbohawk LS-C
- HawkOne
- Jetstream
How to Choose Your Atherectomy Device

Lesion character
  Soft plaque vs heavily calcified lesion
  Concentric (rotational) vs eccentric (directional)

Length and procedure time

Size  how large hole you want to make ?
Stent ?
Crossover sheath
  6 Fr, 7Fr, 8Fr ?

Cost

Protection device (EZ filter, spider, NAV-6..etc)
Laser Atherectomy

Ultraviolet 308 nm excimer laser
Debulking thrombus, atheroma, emboli
Poor effect for heavy calcified vessel
The step by step technique can be used to cross SFA CTO, lead with laser not wire
Perforation 2%
Embolization 4%
Laser Atherectomy: Key Trial

**EXCITE ISR**

- Study Design and Oversight
  - Prospective, RCT, US study
  - 250 patients, 40 centers
  - Angio + Duplex Core lab

**Key Inclusion**
- RCC 1-4
- ISR lesion $\geq 4$ cm, no lesion limit
- $\geq 1$ patent tibial artery
- RVD $\geq 5.0$mm to $\leq 7.0$mm

**Key Exclusion**
- Target lesion extends $>3$cm beyond stent margin
- Untreated inflow lesion
- Grade 4 or 5 stent fx

Dippel TCT LBCT 2014
EXCITE ISR

Primary Efficacy Endpoint

Freedom from TLR thru 6 months

- ITT: 73.5%
- ITT w/o Bailout Stenting as TLR: 51.8%
- Per protocol: 46.7%

P-values:
- P<0.005
- P<0.05
- P<0.001
Rationale for Combination Treatment
Atherectomy and DCB

Theoretical benefit for atherectomy

• DCB may inhibit the inflammatory response caused by mechanical trauma
• DCB may improve patency in longer lesions and occlusions
Rationale for Combination Treatment
Atherectomy and DCB

Theoretical benefit for DCB therapy

- Plaque removal could facilitate local drug delivery into vessel wall
- Atherectomy in SFA lesions improve clinical success by
  - Residual restenosis
  - Flow limiting dissections
  - Bailout stent rate


LAART: Laser Atherectomy Antirestenotic Therapy
Kaplan-Meier curve of 12-month primary patency

<table>
<thead>
<tr>
<th></th>
<th>6 m</th>
<th>12 m</th>
<th>24 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Patency (PSVR &lt; 2)</td>
<td>95%</td>
<td>95%</td>
<td>84%</td>
</tr>
<tr>
<td>Assisted Patency</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>ABI</td>
<td>0.56</td>
<td>0.85</td>
<td>0.80</td>
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<tr>
<td>TLR</td>
<td>5%</td>
<td>11%</td>
<td>16%</td>
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<tr>
<td>Major amputation</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Death</td>
<td>0</td>
<td>16%</td>
<td>16%</td>
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</tbody>
</table>
DEFINITIVE AR 1-yr Result (Angio Primary Patency)
Jetstream

Discover the Value of Versatility

Versatility means not having to guess the morphology! Peripheral artery lesions can present with a range of morphologies from soft thrombus to plaque and difficult calcification — often in the same vessel. The Jetstream™ Atherectomy System is indicated for both infradiscal and atherectomy and has demonstrated its ability to deliver luminal gain in soft, hard and calcified lesions.

Ergonomic, Single or Dual-Operator Design

The lighter, more ergonomic XC and SC catheters are designed to enhance ease of use. Control buttons are integrated into the module, which can be used either in the pod or removed for remote activation. The improved Wire GARD simplifies wire management.

Rotarex
<table>
<thead>
<tr>
<th>Feature</th>
<th>Laser</th>
<th>HwakOne</th>
<th>Jetstream</th>
<th>Rotarex</th>
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<tbody>
<tr>
<td>Crossover Fr</td>
<td>6-8</td>
<td>6-7</td>
<td>7</td>
<td>6 or 8</td>
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<tr>
<td>MLD (mm)</td>
<td>4.5</td>
<td>4-5, depends</td>
<td>4</td>
<td>depends</td>
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<tr>
<td>Heavily Ca+</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Thrombus/soft plaque</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Long lesion</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Stent +</td>
<td>V</td>
<td>V</td>
<td>?</td>
<td>V</td>
</tr>
<tr>
<td>Protection</td>
<td>V</td>
<td>V</td>
<td>Only NAV-6</td>
<td></td>
</tr>
<tr>
<td>Cost</td>
<td>$$$</td>
<td>$$</td>
<td>$$$</td>
<td>$</td>
</tr>
</tbody>
</table>
Case Series Discussion

How to choose your atherectomy weapon?
58 y/o M, IC 1 year, L-ABI 0.55

Soft plaque, length 15 cm

Laser
Rotarex
HawkOne
Jetstream
Laser angioplasty with 2.5 mm Turbo Elite
5.0/150 mm Pacific extreme balloon at 10 atm

5.0/120 mm Inpact DEB balloon at 8 atm x 5 min
After laser atherectomy with DCB
6 mo f/u Ultrasound (ABI 0.91)

LCFA: 124 cm/s
LSFA: 122 cm/s
LPOP: 200 cm/s
LPTA: 138 cm/s
L PDA: 105 cm/s
55 y/o M, uremia, HTN, CAD, DM, RC3, ABI 0.45

Cross to DFA with V18, dilate with 2.0/40 mm balloon then re-wire to RSFA
55 y/o M, uremia, HTN, CAD, DM, RC3, ABI 0.45

Short rock like vessel

Laser

Rotarex

HawkOne  V  V

Jetstream  V
POBA with 6.0/40 mm, 7.0/80 mm balloon
POBA with 7.0/80 mm InPACT DCB
POBA CTO RATA 2.5-3.0/210 mm, 4.0/120 mm POBA RPTA 3.0/120 mm balloon
86 y/o F uremia CAD DM RC5 ABI 0.46

Short calcified
Laser
Rotarex
HawkOne
Jetstream

V V
Atherectomy with HawkOne, 5 mm Spider
After Atherectomy with HawkOne
4.0/300 mm Pacific extreme balloon

Two 4.0/150 mm InPACT DCB at 5 min
ABI 0.77
76 y/o F Af CAD DM RC5

Long soft plaque/organized thrombus

Laser
Rotarex
HawkOne
Jetstream

CT 6 mo ago
CDT with 30 cm Fountain, UK 240000 units
6Fr Rotarex
After Atherectomy with Rotarex
5.0/300 mm Pacific extreme, one 6.0/120 mm Zilver PTX over ostial RSFA, two 5.0/150 mm InPACT DCB

CTO RATA 2.0/150 mm Freeway DCB, 3
2.5/120 mm Lutonix DCB 10 atm 3 min
77 M CAD DM RC5 ABI 0.53

Soft plaque with little calcification, tandem lesion

Laser

Rotarex

HawkOne

Jetstream
Jetstream XC 2.4/3.4 mm blades down under NAV-6 protection/UK 240000 units via 20 cm Fountain catheter
Jetstream XC 2.4/3.4 mm, blades up
6.0/300 mm Pacific extreme 10 atm
Two Ranger DCB
6.0/100 mm

InPACT DCB
7.0/80 mm, 6.0/150 mm
No flow/slow flow phenomenon after DCB
No dissection on IVUS, ACT 280, NTG infusion
Flow recover after repeated NTG, ABI 1.01
Atherectomy device should be lesion specific

Before choosing your atherectomy weapon, consider:
- Character/calcification/concentric or eccentric
- Size
- Length/procedure time
- Stent
- Protection device
- Procedure time
- Cost
Thanks For Your Attention
Lesion Specific Solution of Atherectomy Devices

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