Debate: mechanical barrier vs. drug-elution for treatment of in-stent restenosis

Pro drug-elution

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Disclosure

Speaker name: Hans Krankenberg

I do not have any potential conflict of interest
Drug-elution for SFA In-Stent Restenosis

- DES
  - ZILVER PTX-ISR subgroup analysis

- DCB
  - Two pilot registries
  - FAIR randomized, controlled trial
  - COPA CABANA randomized, controlled trial
DES: Zilver-PTX Single-Arm Study
Primary Patency

- Subgroup ISR
  N=108/787
- 119 Lesions
- Ø Lesion length 133 mm

DES: Zilver-PTX Single-Arm Study

Freedom from TLR

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  N=108/787
- 119 Lesions
- Ø Lesion length 133 mm

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Early Evidence for DCB* in SFA-ISR

12-Month Primary Patency 80-90%

N = 39
ISR 8.3 cm
Restenosis 7.9%
TLR 7.9%

* Stabile E et al. JACC 2012

* IN.PACT DEB

N = 42
ISR 13.2 cm
Restenosis 19.5%
TLR 13.6%

** Liistro F et al. J Endovsc Ther 2014

* historical comparison
Early Evidence for DCB in SFA-ISR
24-Month Primary Patency 70%

Freedom from TLR
78.4%

24 Months:
Restenosis 29.7% (11/37)
TLR 21.6% (8/37)

Recurrent ISR
according to baseline ISR

- Focal
  - 12.5%
- Diffuse
  - 33.3%
- Occluded
  - 36.3%

P=0.05

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**FAIR Trial**

Prospective, Multicenter, Randomized, Controlled, Corelab Adjudicated, Investigator Initiated

119 patients  
01/10–11/12

- **DCBA**  
  n = 62

- **POBA**  
  n = 57

Follow-up at 6 and 12 months  
Clinical / Functional / Duplex US

ClinicalTrials.gov NCT01305070
# FAIR Trial

## Lesion Characteristics

<table>
<thead>
<tr>
<th></th>
<th>DCBA</th>
<th>POBA</th>
<th>( P )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( N )</td>
<td>62</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>Dist SFA / P1</td>
<td>50%</td>
<td>38.5%</td>
<td>0.855</td>
</tr>
<tr>
<td>( %DS , (% \pm SD) )</td>
<td>89.0 ± 8.9%</td>
<td>89.9 ± 9.6%</td>
<td>0.627</td>
</tr>
<tr>
<td>RVD (mm, mean ± SD)</td>
<td>5.1 ± 0.9</td>
<td>5.4 ± 0.5</td>
<td>0.062</td>
</tr>
<tr>
<td>Lesion Length (mm, mean ± SD)</td>
<td>82.3 ± 70.9</td>
<td>82.1 ± 66.2</td>
<td>0.991</td>
</tr>
<tr>
<td>ISR pattern: focal</td>
<td>25.9%</td>
<td>27.8%</td>
<td></td>
</tr>
<tr>
<td>diffuse</td>
<td>51.7%</td>
<td>53.7%</td>
<td>0.952</td>
</tr>
<tr>
<td>multifocal</td>
<td>22.4%</td>
<td>18.5%</td>
<td></td>
</tr>
<tr>
<td>Heavy Calcium</td>
<td>9.7%</td>
<td>8.8%</td>
<td>1.000</td>
</tr>
<tr>
<td>Total Occlusion</td>
<td>24%</td>
<td>33.3%</td>
<td>0.313</td>
</tr>
</tbody>
</table>

# FAIR Trial

Procedural Characteristics

<table>
<thead>
<tr>
<th></th>
<th>DCBA</th>
<th>POBA</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>62</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>Pre-dilatation</td>
<td>90.3%</td>
<td>12.3%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Post-dilatation</td>
<td>9.7%</td>
<td>22.8%</td>
<td>0.113</td>
</tr>
<tr>
<td>Stenting</td>
<td>1.6%</td>
<td>7.0%</td>
<td>0.199</td>
</tr>
</tbody>
</table>

FAIR Trial

6-Month Recurrent Re-Stenosis (Prim. EP)

\[ P = 0.002 \]

- **DCBA**: 15.4% (8/52)
- **POBA**: 44.7% (21/47)


*by DUS: PVR ≥ 2.4*
FAIR Trial

12-Month Recurrent Re-Stenosis

\[ P = 0.004 \]

- DCBA: 29.5% (13/44)
- POBA: 62.5% (25/40)

FAIR Trial

12-Month Freedom from TLR

### FAIR Trial

#### 12-Month Major Adverse Events

<table>
<thead>
<tr>
<th>Event</th>
<th>DCBA</th>
<th>POBA</th>
<th>(P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All cause death</td>
<td>4.3% (2/47)</td>
<td>6.8% (3/44)</td>
<td>0.591</td>
</tr>
<tr>
<td>Major Bleeding</td>
<td>0%</td>
<td>0%</td>
<td>-</td>
</tr>
<tr>
<td>Major amputation</td>
<td>0%</td>
<td>0%</td>
<td>-</td>
</tr>
<tr>
<td>Thrombosis*</td>
<td>2.1% (1/47)</td>
<td>4.5% (2/47)</td>
<td>0.519</td>
</tr>
<tr>
<td>Surgical Intervention**</td>
<td>2.1% (1/47)</td>
<td>0%</td>
<td>0.331</td>
</tr>
<tr>
<td>Myocardial Infarction</td>
<td>0%</td>
<td>0%</td>
<td>-</td>
</tr>
</tbody>
</table>

Death: no procedure related death

*Thrombosis: DCBA: TLR at 199 days
   POBA: subacute stent-thromb. after TLR with DCB at 84 days
   POBA: occl. of trifurc. trunc at 294 days

**Surgical intervention: femoropopliteal bypass at target limb

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COPA CABANA Trial

Study flow chart

88 Patients
Rutherford 2-5

DCB *
n=47

POBA
n=41

In case of TLR

Double Dose DCB

Follow-up

Clinical/Functional: 1, 6, 12, 24 months
DSA: 6 and 24 months with core lab
DSA: any TLR with core lab
DUS: 6, 12, 24 months

* Cotavance (Paccocath® Technology), Medrad

Courtesy Gunnar Tepe, LINC 2015
## COPA CABANA Trial

### Baseline Characteristics

<table>
<thead>
<tr>
<th></th>
<th>DCB</th>
<th>POBA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Calcification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>proximal to stent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None/Mild</td>
<td>63% (17/27)</td>
<td>80% (12/15)</td>
</tr>
<tr>
<td>Moderate/Severe</td>
<td>37% (10/27)</td>
<td>20% (3/15)</td>
</tr>
<tr>
<td>within stent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None/Mild</td>
<td>68.4% (26/38)</td>
<td>81.5% (22/27)</td>
</tr>
<tr>
<td>Moderate/Severe</td>
<td>31.6% (12/38)</td>
<td>18.5% (5/27)</td>
</tr>
<tr>
<td>distal to stent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None/Mild</td>
<td>80% (16/20)</td>
<td>86.7% (13/15)</td>
</tr>
<tr>
<td>Moderate/Severe</td>
<td>20% (4/20)</td>
<td>13.3% (2/15)</td>
</tr>
<tr>
<td><strong>Total occlusion (100% stenosis (MLD/RVD))</strong></td>
<td><strong>18.4% (7/38)</strong></td>
<td><strong>35.5% (11/31)</strong></td>
</tr>
<tr>
<td><strong>Total occlusion (100% stenosis (MLD/ISD))</strong></td>
<td><strong>18.4% (7/38)</strong></td>
<td><strong>35.5% (11/31)</strong></td>
</tr>
<tr>
<td>% stenosis (MLD/RVD)</td>
<td>77.7 ± 15.4</td>
<td>81.2 ± 17.3</td>
</tr>
<tr>
<td>% stenosis (MLD/ISD)</td>
<td>77.8 ± 16.1</td>
<td>81.7 ± 16.9</td>
</tr>
<tr>
<td><strong>Target lesion length [mm]</strong></td>
<td><strong>119.8 ± 96.5</strong></td>
<td><strong>109.3 ± 78.1</strong></td>
</tr>
</tbody>
</table>

Continuous data: mean ± 1 SD (n); Categorical data: % or n (n)
(n) = total number of patients in the group for whom the information is available (results of the intention-to-treat set (ITT))
Number of patients in the ITT: DCB: 38, POBA: 28

*Insent lesions

Courtesy Gunnar Tepe, LINC 2015
COPA CABANA Trial

6-Month Late Lumen Loss (Prim. EP)

*significant difference between Cotavance and POBA

Courtesy Gunnar Tepe, LINC 2015
COPA CABANA Trial

Freedom from TLR

Courtesy Gunnar Tepe, LINC 2015
Conclusions

Efficacy

- **DES** in SFA-ISR resulted in promising 12- and 24-month TLR rates. However, data from a RCT is still missing.

- **DCBA** in SFA-ISR is associated with
  - less late lumen loss at 6 months
  - less recurrent re-stenoses at 6 and 12 months,
  - and less TLRs at 12 months than POBA.

  **DCBA is currently the treatment of choice for SFA-ISR up to 15 cm**
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