STRATEGIES FOR TREATING LONG-SEGMENT AORTOILIAC OCCLUSIONS

AORTO-ILIAC OCCLUSIVE COMPLEX DISEASE: HOW TO TREAT TASC C-D

Prof. Michele Antonello, MD PhD

Vascular and Endovascular Surgery Unit
Department of Cardiac, Thoracic, Vascular Sciences and Public Health
University of Padua; Dir: Prof. F. Grego
BACKGROUND

✓ Heavy calcification
✓ Long lesions
✓ Common Femoral Artery
✓ Aortic bifurcation
✓ Renal artery

✓ Complex procedure
✓ Type of stent
BACKGROUND

COVERED STENT

<table>
<thead>
<tr>
<th>Boston Scientific Wallgraft (CrCo alloy/PTFE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bard Fluency Plus Flair (nitinol/PTFE)</td>
</tr>
<tr>
<td>Bard Caverna (nitinol/PTFE)</td>
</tr>
<tr>
<td>Gore Viabahn (nitinol/PTFE)</td>
</tr>
<tr>
<td>Gore Viabahn VBX (stainless steel/PTFE)</td>
</tr>
<tr>
<td>Bentely BeGraft and BeGraft Plus (CrCo alloy/PTFE)</td>
</tr>
</tbody>
</table>

BM STENT

Jotec Eventus (CrCo alloy/PTFE)

Bard LifeStream (stainless steel/PTFE)

www.chirurgiavascolarepadova.it
A comparison of covered vs bare expandable stents for the treatment of aortoiliac occlusive disease

Bibombe P. Mwipatayi, MMed (Surg), FCS (SA), FRACS,a,b Shannon Thomas, MBBS (Hons),a Jackie Wong, MPH,c Suzanna E. L. Temple, PhD, MBA,c,d Vikram Vijayan, MRCS, FRCS,c Mark Jackson, MD, FRACS,e and Sally A. Burrows, BMath Grad Dip Med Stat,f on behalf of the Covered Versus Balloon Expandable Stent Trial (COBEST) Co-investigators.* Perth, Western Australia and Gold Coast, Queensland, Australia

BACKGROUND

Reintervention rate

Durability of the balloon-expandable covered versus bare-metal stents in the Covered versus Balloon Expandable Stent Trial (COBEST) for the treatment of aortoiliac occlusive disease

Bibombe P. Mwipatayi, MMed (Surg), FCS (SA), FRACS,b,c,d Sarabhi Sharma, MBBS,b Ali Daneshmand, MD,a Shannon D. Thomas, BMedSci, FRACS,a,b,c,d Vikram Vijayan, MRCS, FRCS,c Nishanth Altaf, PhD, FRCS,c Marek Garbowski, MB BS, FRACS,c and Mark Jackson, MD, FRACS,c on behalf of the COBEST co-investigators,* Perth, Sydney, and Queensland, Australia; and Singapore

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July 2016
Covered versus Bare-metal Stent in the Kissing Reconstruction of the Aortic Bifurcation: A Propensity Score-Matched Analysis from ILIACS registry

Francesco Squizzato, Michele Piazza, Raffaele Pulli, Aaron Fargion, Gabriele Piffaretti, Carlo Pratesi, Franco Grego, Michele Antonello. On behalf of the ILIACS registry group investigators

**Unmatched cohort**

<table>
<thead>
<tr>
<th></th>
<th>CS (N=201)</th>
<th>BMS (N=135)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical success</td>
<td>201 (100)</td>
<td>133 (98.5)</td>
<td>.083</td>
</tr>
<tr>
<td>Postoperative ABI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>0.86±0.17</td>
<td>0.84±0.16</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>0.4-1</td>
<td>0.3-1.1</td>
<td></td>
</tr>
<tr>
<td>ABI increase</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>0.40±0.29</td>
<td>0.34±0.25</td>
<td>.022*</td>
</tr>
</tbody>
</table>

**Matched cohort**

<table>
<thead>
<tr>
<th></th>
<th>CS (N=110)</th>
<th>BMS (N=110)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical success</td>
<td>110 (100)</td>
<td>110 (100)</td>
<td>1.00</td>
</tr>
<tr>
<td>Postoperative ABI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>0.88±0.17</td>
<td>0.83±0.15</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>0.4-1</td>
<td>0.3-1.1</td>
<td>.025*</td>
</tr>
<tr>
<td>ABI increase</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>0.43±0.22</td>
<td>0.36±0.24</td>
<td>.025*</td>
</tr>
</tbody>
</table>

*Denotes statistical significance.
BACKGROUND

Clinical Research
Iliac Artery Stenting Combined with Ipsilateral Open Femoro-Popliteal Revascularization and Its Effect on Bypass Patency

Michele Piazza, Francesco Squizzato, Sandro Lepidi, Mirko Menegolo, Franco Grego, Michele Antonello

Primary Patency

Variable | 95% CI | HR | P
---|---|---|---
Rutherford 5/6 | 0.26–7.73 | 1.48 | 0.64
Covered stent | 0.00–0.64 | 0.16 | 0.01
CFR endarterectomy | 0.00–0.23 | 0.48 | 0.26
Below the knee | 0.84–6.38 | 2.81 | 0.09
GTV bypass | 0.06–1.04 | 0.24 | 0.06
Tibial runoff ≥ 6 | 0.97–6.50 | 1.46 | 0.55
KISSING BM STENT
AORTIC BIFURCATION RECONSTRUCTION

THE KISSING TECHNIQUE

CERAB

Covered Endovascular Reconstruction Aortic Bifurcation
BACKGROUND

Geometrical consequences of kissing stents and the Covered Endovascular Reconstruction of the Aortic Bifurcation configuration in an in vitro model for endovascular reconstruction of aortic bifurcation

Erik Groot Jebbink, MSc, Frederike A. B. Grimme, MD, Peter C. J. M. Goverde, MD, Jacques A. van Oostayen, MD, Corneils H. Stump, PhD, and Michel M. P. J. Keijnen, MD, PhD,

n and Enschede, The Netherlands; and Antwerp, Belgium

J Vasc Surg 2015
BACKGROUND

Three-year outcome of the covered endovascular reconstruction of the aortic bifurcation technique for aortoiliac occlusive disease

Kim Taeymans, MD, Erik Groot Jebbink, MSc, Suzanne Holewijn, PhD, Jasper M. Martens, MD, Michel Versluis, PhD, Peter C. J. M. Goverde, MD, and Michel M. P. J. Reijnen, MD, PhD, Antwerp, Belgium; and Arnhem and Enschede, The Netherlands
The First Balloon-Expandable Stent-Graft Approved for Treatment of Iliac Occlusive Disease

Journal of Endovascular Therapy

Michele Piazza, MD¹, and Michele Antonello, MD¹
KISSING STENT
### GEOMETRICAL AORTIC RECONSTRUCTION

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean±SD</th>
<th>Median (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protrusion mismatch, mm</td>
<td>0.8±1.7</td>
<td>0 (0-5)</td>
</tr>
<tr>
<td>Radial mismatch area, mm²</td>
<td>20.4±10.6</td>
<td>20 (3-40)</td>
</tr>
<tr>
<td>Radial mismatch volume, mm³</td>
<td>2442±182</td>
<td>2200 (50-5600)</td>
</tr>
<tr>
<td>Stent conformation and morphology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D-ratio</td>
<td>1.4±0.2</td>
<td></td>
</tr>
<tr>
<td>Mean major diameter, mm</td>
<td>10.9±1.6</td>
<td></td>
</tr>
<tr>
<td>Mean minor diameter, mm</td>
<td>8.1±1.3</td>
<td></td>
</tr>
<tr>
<td>Stent symmetry ratio</td>
<td>1±0</td>
<td>1 (1-1.4)</td>
</tr>
</tbody>
</table>


**Geometrical Analysis and Preliminary Results for the Endovascular Reconstruction of Aortic Bifurcation Using New-Generation Balloon-Expandable Covered Stents in the Kissing Conformation**

Michele Piazza ¹, Francesco Squizzato ², Gianna Saviane ¹, Franco Grego ¹, Michele Antonello ¹
The Viabahn balloon expandable stent for endovascular reconstruction of the infrarenal aorta and its bifurcation in cases of severe obstructive disease

Michele Antonello, Francesco Squizzato and Michele Piazza
VERAB TECNIQUE
VERAB TECNIQUE
NARROW DISTAL AORTA

- VBX: 11-59
- VBX: 8L-79 Kissing
VERAB NARROW DISTAL AORTA
VERAB NARROW DISTAL AORTA
VERAB NARROW DISTAL AORTA
VERAB NARROW DISTAL AORTA
KISSING STENT IN NARROW DISTAL AORTA

VBX 8L-59Kissing

14 mm

7.5 mm

7 mm
Outcomes of polytetrafluoroethylene-covered stent versus bare-metal stent in the primary treatment of severe iliac artery obstructive lesions

Michele Piazza, MD, a Francesco Squizzato, MD, a Gaya Spolverato, MD, b Luca Milan, MD, a Stefano Bonvini, MD, a Mirko Menegolo, MD, a Franco Grego, MD, a and Michele Antonello, MD, a
Padova, Italy

Fig. 2. Primary patency for 167 limbs treated with bare-metal stents (BMS) or covered stents (CS) stratified by TransAtlantic Inter-Society Consensus (TASC) for the Management of Peripheral Arterial Disease C and D lesions. *Standard error >10%.

Fig. 3. Primary patency between covered stents (CS) and bare-metal stents (BMS) for a subcategory of TransAtlantic Inter-Society Consensus for the Management of Peripheral Arterial Disease (TASC II) D lesions, defined as long lesions involving both the common iliac artery (CIA) and the external iliac artery (EIA). *Standard error >10%.
EXTERNAL ILIAC ARTERY

CONFORMABILITY
EXTERNAL ILIAC ARTERY

CONFORMABILITY
COMMON FEMORAL RECONSTRUCTION
EXTERNAL ILIAC ARTERY

CONFORMABILITY
EXTERNAL ILIAC ARTERY

STENT
EXTERNAL ILIAC ARTERY

STENT

LOCAL COMPRESSION DEVICE COMPARISON

Merit WRAPSODY versus 10 mm leading covered stent, each compressed in the centre by 1.8 N.
EXTERNAL ILIAC ARTERY
EXTERNAL ILIAC ARTERY
MULTICENTER EXPERIENCE

Isolated External Iiac Artery Lesions: 93 pts

Primary Patency

Probability

Number at risk

<25% 25–50% 50–75% >75%
Open repair versus endovascular treatment of complex aortoiliac lesions in low risk patients

Michele Antonello, MD, Francesco Squizzato, MD, Silvia Bassini, MD, Luca Porcellato, MD, Franco Grego, MD, and Michele Piazza, MD, Padua, Italy

Primary Patency in patients ≤60 years

- OR: 56, 56, 54, 46, 46, 41, 39, 39, 32, 28, 21
- ER: 53, 49, 46, 36, 32, 26, 20, 19, 19, 18, 18

Freedom from reintervention in patients ≤60 years

- OR: 39, 34, 33, 30, 30, 27, 26, 25, 22, 19, 15
- ER: 35, 31, 30, 23, 22, 18, 16, 12, 11, 11, 10

P = .272

P = .223
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