2-year results of the ZILVERPASS RCT comparing Zilver PTX DES treatment to open prosthetic bypasses for long fempop lesions.

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VEITH 2019 – New York

ZILVERPASS study


ZILVERPASS study

A prospective, randomized, multi-center study

1:1 randomization
220 patients
4 countries
13 clinical centers

My disclosures

X I do not have any potential conflicts of interest to report

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)

STUDY OBJECTIVES

To evaluate the performance of the Cook Zilver PTX paclitaxel-eluting stent compared to bypass surgery for the treatment of femoropopliteal TASC C & D lesions

STUDY OBJECTIVES

Why versus prosthetic bypass?

Randomized prospective study in 100 patients comparing Prosthetic (52) and Autologous Vein (48) in ATK-FF-bypasses

<table>
<thead>
<tr>
<th></th>
<th>Prosthetic group</th>
<th>Vein group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary patency (%)</td>
<td>75.7</td>
<td>75.8</td>
</tr>
<tr>
<td>Secondary patency (95% CI)</td>
<td>84.9 (72.4–93.3)</td>
<td>86.6 (69.3–94.1)</td>
</tr>
</tbody>
</table>

Results in prosthetic group were non-inferior when compared to the autologous vein group.
STUDY TIMELINE

Patient informed consent
In- / exclusion criteria check
Medical / clinical history
Medication
Physical examination
Rutherford
ABI
Regular Angiography
Regular Duplex Ultrasound
Core Lab Duplex Ultrasound
Adverse Events

STUDY TIMELINE

PRIMARY ENDPOINTS

Primary patency at 12 months, defined as:

<table>
<thead>
<tr>
<th></th>
<th>Zilver PTX</th>
<th>BYPASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absence of binary restenosis or occlusion within treated lesion*</td>
<td>Absence of binary restenosis or occlusion at proximal and distal intima-media and over the entire length of the bypass graft*</td>
<td></td>
</tr>
<tr>
<td>Without TLR within 12 months</td>
<td>Without clinically driven re-intervention to restore flow in the bypass.</td>
<td></td>
</tr>
</tbody>
</table>

* Based on CDRU measuring a PSV ratio < 1.4

INCLUSION CRITERIA

1. Patient presenting with lifestyle-limiting claudication, rest pain or minor tissue loss (Rutherford Clinical Category 2 to 5)
2. Stenotic or obstructive de novo lesion located in the femoropopliteal arteries, suitable for endovascular therapy and for bypass surgery.
3. Total target lesion length is at least 150mm.

EXCLUSION CRITERIA

1. Any previous surgery and/or endovascular procedure in the target vessel.
2. Perioperative unsuccessful ipsilateral percutaneous vascular procedure to treat inflow disease just prior to enrollment
3. Any planned surgical intervention/procedure within 30 days of the study procedure.
4. Major distal amputation (above the transmetatarsal) in the study or non-study limb.

PATIENT DEMOGRAPHICS

<table>
<thead>
<tr>
<th>Gender</th>
<th>BYPASS N = 113</th>
<th>Zilver PTX N = 113</th>
<th>P = 0.267</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>72.2%</td>
<td>73.6%</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>27.8%</td>
<td>26.4%</td>
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<table>
<thead>
<tr>
<th>Rutherford Baseline</th>
<th>BYPASS N = 107</th>
<th>Zilver PTX N = 113</th>
<th>P = 0.016</th>
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<tbody>
<tr>
<td>Claudication</td>
<td>57.9%</td>
<td>63.20%</td>
<td></td>
</tr>
<tr>
<td>CLI</td>
<td>36.80%</td>
<td>30.80%</td>
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</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>BYPASS N = 107</th>
<th>Zilver PTX N = 113</th>
<th>P = 0.005</th>
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</thead>
<tbody>
<tr>
<td>68.63 ± 10.52</td>
<td>69.58 ± 10.84</td>
<td></td>
<td></td>
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</table>

RISK FACTORS (1/2)

<table>
<thead>
<tr>
<th>Smoking history</th>
<th>BYPASS N = 107</th>
<th>Zilver PTX N = 113</th>
<th>P = 0.053</th>
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<tbody>
<tr>
<td>Yes</td>
<td>68.95%</td>
<td>74.50%</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>31.05%</td>
<td>25.50%</td>
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</table>

<table>
<thead>
<tr>
<th>Hypertension</th>
<th>BYPASS N = 107</th>
<th>Zilver PTX N = 113</th>
<th>P = 0.008</th>
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<tr>
<td>Yes</td>
<td>72.57%</td>
<td>73.43%</td>
<td></td>
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<tr>
<td>No</td>
<td>27.43%</td>
<td>26.57%</td>
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<table>
<thead>
<tr>
<th>Diabetes Mellitus</th>
<th>BYPASS N = 107</th>
<th>Zilver PTX N = 113</th>
<th>P = 0.480</th>
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<tbody>
<tr>
<td>Yes</td>
<td>31.78%</td>
<td>29.50%</td>
<td></td>
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<tr>
<td>No</td>
<td>68.22%</td>
<td>70.50%</td>
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<table>
<thead>
<tr>
<th>Coronary Artery Disease</th>
<th>BYPASS N = 107</th>
<th>Zilver PTX N = 113</th>
<th>P = 0.246</th>
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<tbody>
<tr>
<td>Yes</td>
<td>57.95%</td>
<td>58.05%</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>42.05%</td>
<td>41.95%</td>
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</table>
LESION CHARACTERISTICS

- **Very complex lesions:**
  - 94.55% were occluded and mean lesion length was 247.11mm

**Lesion Type**
- **Stenosis:**
  - Zilver PTX: 5.45% (7/113)
  - BYPASS: 2.80% (3/107)
  - P = 0.092
- **Occlusion:**
  - Zilver PTX: 94.55% (104/113)
  - BYPASS: 97.20% (104/107)

**Lesion Length**
- **mm ± SD (min – max):**
  - Zilver PTX: 241.67 ± 63.33 (120 – 500)
  - BYPASS: 252.86 ± 74.89 (100 – 400)
  - P = 0.104

**Proximal Reference Vessel Diameter**
- **mm ± SD (min – max):**
  - Zilver PTX: 5.72 ± 0.65 (4.40 – 8.00)
  - BYPASS: 6.05 ± 0.77 (4.00 – 8.00)
  - P = 0.320

**Procedure Time**
- **minutes ± SD (min – max):**
  - Zilver PTX: 90.46 ± 44.77 (17 – 240)
  - BYPASS: 123.05 ± 38.88 (53 – 240)
  - P < 0.001

**Cross-over performed?**
- Yes: 71.68% (81/113)
- No: 28.32% (32/113)

**Scopy Time**
- **minutes ± SD (min – max):**
  - Zilver PTX: 17.91 ± 15.71 (4.00 – 123.00)
  - BYPASS: 17.72 ± 14.59 (4.00 – 123.00)

**Contrast dose**
- **mL ± SD (min – max):**
  - Zilver PTX: 107.24 ± 51.10 (12.00 – 290.00)
  - BYPASS: 108.17 ± 52.90 (12.00 – 290.00)

**Bypass material**
- **Dacron:** 39.25% (12/107)
- **PTFE:** 60.75% (65/107)

**Hospital stay**
- **Nights ± SD (min – max):**
  - Zilver PTX: 2.52 ± 3.50 (0.00 – 20.00)
  - BYPASS: 5.26 ± 5.65 (0.00 – 34.00)
  - P < 0.001

**30-DAY FREEDOM FROM COMPLICATION RATE**
- **Zilver PTX:** 95.60%
- **BYPASS:** 88.70%

**12-MONTH SURVIVAL RATE**
- **Zilver PTX:** 94.50%
- **BYPASS:** 96.10%

**12-MONTH PRIMARY PATENCY**
- **Zilver PTX:** 74.50%
- **BYPASS:** 72.50%
No difference for claudicants / CLI patients in PP!

Baseline 30 days 6MFU 12MFU-D365 12MFU-D395

ZILVER PTX
Tar 80 79 75 58 57
% 100 100 94.90 75.80 75.80

BYPASS
Tar 59 56 46 39 38
% 100 96.60 84.00 74.40 74.40

12-MONTH FREEDOM FROM TLR

Baseline 30 days 6MFU 12MFU-D365 12MFU-D395

ZILVER PTX
Tar 113 109 103 82 80
% 100 100 96.30 80.90 79.90

BYPASS
Tar 107 105 90 76 74
% 100 99.10 88.30 76.20 76.30

Zilver PTX : 75.80%
BYPASS : 74.40%

Zilver PTX : 70.70%
BYPASS : 70.80%

Zilver PTX : 80.90%
BYPASS : 76.20%

24-MONTH SURVIVAL RATE

Baseline 6MFU 12MFU 24MFU

ZILVER PTX
Tar 113 107 101 77
% 100 96.40 94.50 87.50

BYPASS
Tar 107 98 95 77
% 100 97.10 96.10 91.80

Zilver PTX : 87.50%
BYPASS : 91.80%

24-MONTH PRIMARY PATENCY

Primary Patency, defined as absence of binary restenosis in both groups

Baseline 6MFU 12MFU 24MFU

ZILVER PTX
Tar 113 102 77 49
% 100 95.40 73.60 60.20

BYPASS
Tar 107 89 72 50
% 100 87.40 72.40 59.90

Zilver PTX : 60.20%
BYPASS : 59.90%

24-MONTH FREEDOM FROM TLR

Freedom from Target Lesion Revascularization - 12MFU vs 24MFU

Baseline 30 days 6MFU 12MFU-D365 12MFU-D395

ZILVER PTX
Tar 113 103 82 59
% 100 96.30 80.90 72.90

BYPASS
Tar 107 89 75 55
% 100 88.20 76.10 67.90

Zilver PTX : 72.90%
BYPASS : 67.90%
COMPARABLE STUDIES

- RCT 126 patients
  - 63 Viabahn endovascular stenting
  - 63 femoropopliteal bypass

COMPARABLE STUDIES ~ RESULTS

<table>
<thead>
<tr>
<th></th>
<th>Surgical (N=61)</th>
<th>Endoluminal (N=62)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Endothelial (95%)</td>
<td>Endothelial (95%)</td>
</tr>
<tr>
<td>12 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Primary Patency</td>
<td>84.60%</td>
<td>82.50%</td>
</tr>
<tr>
<td>Secondary Patency</td>
<td>91.10%</td>
<td>90.20%</td>
</tr>
<tr>
<td>Freedom from TVR</td>
<td>67.70%</td>
<td>75.70%</td>
</tr>
<tr>
<td>24 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Primary Patency</td>
<td>75.40%</td>
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<tr>
<td>Secondary Patency</td>
<td>79.40%</td>
<td>82.20%</td>
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<tr>
<td>Freedom from TVR</td>
<td>65.90%</td>
<td>56.10%</td>
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ZIL VERPASS trial

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<thead>
<tr>
<th></th>
<th>Surgical (N=107)</th>
<th>Zilver PTX (N=113)</th>
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<td>Secondary Patency</td>
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<td>Freedom from TLR</td>
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<td>80.90%</td>
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<td>24 months</td>
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<td></td>
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<tr>
<td>Total Primary Patency</td>
<td>59.90%</td>
<td>60.20%</td>
</tr>
<tr>
<td>Secondary Patency</td>
<td>88.60%</td>
<td>81.30%</td>
</tr>
<tr>
<td>Freedom from TLR</td>
<td>67.90%</td>
<td>72.90%</td>
</tr>
</tbody>
</table>

CONCLUSION

- Zilver PTX is obtaining outstanding primary patencies, also in long & more complex SFA lesions.

- Patency analysis in these study cohorts are based on objective CFDU PSVR assessments in both study arms.

- Final 12-month and 24-month results show at least a non-inferiority of Zilver PTX versus prosthetic bypass surgery ATK, with similar patency results, less complications and shorter hospitalization.