Paclitaxel-eluting Stents versus Surgical Bypass for Long-segment Femoral-popliteal Occlusive Disease

Lauren Farley MD, Akeem Bartley MD, Christopher Latz MD, **Charles J Bailey MD**

University of South Florida- Division of Vascular Surgery, Tampa, FL

Objectives

- The optimal treatment for advanced peripheral arterial disease (PAD), endovascular therapies or surgical bypass, remains without consensus.
- Paclitaxel-coated devices (PCD) have proven beneficial in reducing rates of restenosis and reintervention, as compared to non-coated devices, though remain underrepresented in randomized trials investigating revascularization strategies.[1,2,3,4]
- This study reports our institutional experience comparing outcomes of paclitaxel-eluting stents versus open surgical bypass for long-segment femoral-popliteal occlusive disease.[5]

Methods

- Single-center retrospective review
- January 2013 – December 2020
- Inclusion criteria
  - TASC C & D Femoral-popliteal lesions
  - *de novo* Paclitaxel-eluting stent placement (**Zilver PTX, Cook Medical**)
  - *Index* Open surgical bypass
- Exclusion criteria
  - TASC A & B Femoral-popliteal lesions
  - Acute limb ischemia or vascular trauma
  - Femoral-popliteal aneurysms
  - Bypass after attempted endovascular therapy
- Kaplan-Meier (KM) and Cox regression

Results

- Met criteria for analysis: **N=138 Zilver PTX vs N=126 Open Surgical Bypass**
- No difference between cohorts in demographics, comorbidities, baseline ABI, TASC lesion
- KM estimates an overall greater amputation-free survival (AFS) in Zilver PTX (p=0.01) **Fig1**
- A trend of improved AFS in revascularization with Zilver PTX or vein bypass (p=0.052) **Fig2**
- A superior freedom from occlusion in Zilver PTX versus open surgical bypass (p=.01) **Fig3**
- Greater freedom from occlusion in Zilver PTX and vein versus prosthetic graft (p=.002) **Fig4**

Fig 1

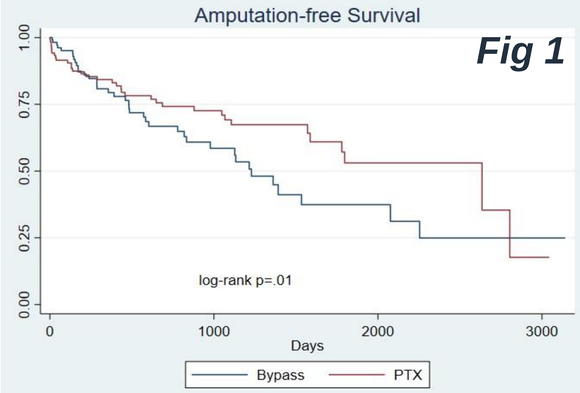


Fig 2

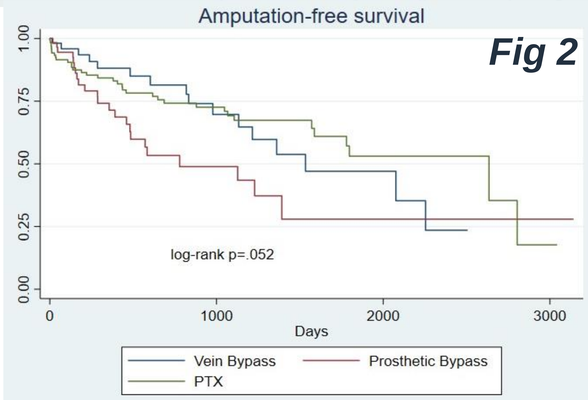


Fig 3

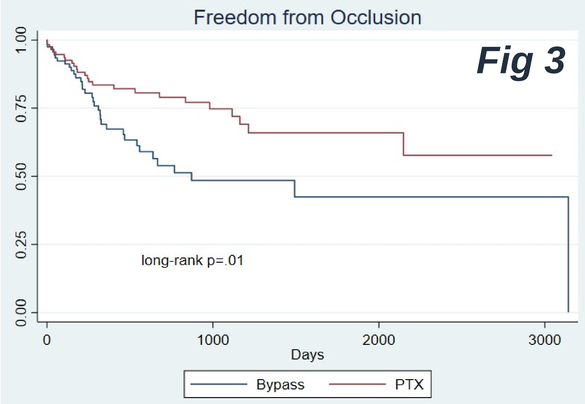
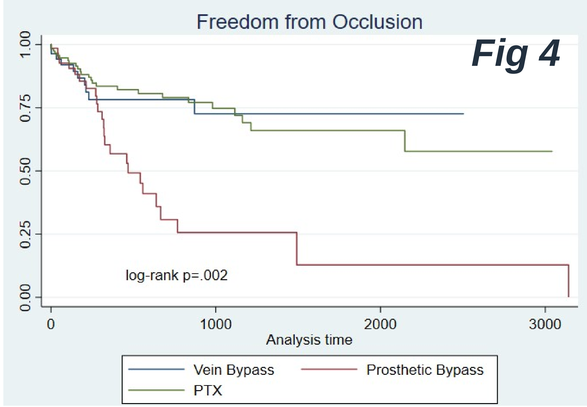


Fig 4



Conclusion

- Our real-world experience demonstrates the safety and efficacy of paclitaxel-eluting stents in the management of long-segment femoral-popliteal occlusive disease, with rates of both amputation free survival (AFS) and freedom from occlusion similar to revascularization with autologous vein bypass.
- Multivariable analysis identified an increased risk of vascular occlusion with use of a prosthetic bypass graft (aHR: 2.87; 95% CI: 1.35-6.08; p=0.006), and critical limb threatening ischemia (CLTI) as a predictor of decreased AFS (aHR: 2.5; 95% CI: 1.45-4.45; p=0.001).
- Paclitaxel-eluting stents should be considered for revascularization of TASC C and D femoral-popliteal lesions in the absence of autologous vein.

References

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3. *Smith et al. J Vasc Surg 2023; 77: 1742-50.*
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Charles J Bailey MD, RPVI, FSVS
Assistant Professor of Surgery
Director, Limb Preservation-PAD Program
cbailey5@usf.edu