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Abi-Khalil, J., Astarci, P., Elens, M.

Comparison of Interwoven Nitinol and Drug-Eluting Stents for Endovascular Treatment of Femoropopliteal Artery Disease

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Cardiovascular and Thoracic Surgery Department, Cliniques Universitaires St-Luc, Brussels, Belgium

Abstract

Background: Interwoven nitinol stents (INS) and drug-eluting stents (DES) were designed to improve the mid-and long-term results of femoropopliteal (F-P) angioplasty. The aim of this study was to systematically compare these stents. Methods: Between 2015 and 2017, 62 patients with symptomatic peripheral artery disease of the F-P segment treated by INS or DES were identified from a prospectively maintained institutional database. The primary outcome measure was one-year primary patency; secondary outcomes were in-stent restenosis (ISR), stent occlusion, target lesion revascularization (TLR) and mortality. Results: The mean follow-up was 26.9 ± 11.2 months. No statistically significant difference in primary patency at one year was observed (88.6% vs. 88.9%). Throughout follow-up, overall rates of ISR (5.7% vs. 11.1%, $p = 0.645$), stent occlusion (25.7% vs. 7.4%, $p = 0.094$) and TLR (25.7% vs. 18.5%, $p = 0.505$) were statistically equivalent between the groups. Mortality reached 14.3% in the INS group and 3.7% in the DES group, but this difference was not statistically significant ($p=0.196$). Multivariable analysis revealed significant correlations between ISR and stent occlusions; popliteal lesion localization ($p = 0.016$) and poor below the knee vessel outflow ($p < 0.001$). Conclusion: In the short-and mid-term, the use of an INS or DES in the F-P arterial segment did not result in a difference in primary patency rate, stent occlusion, restenosis, re-intervention or mortality. The overall data do not provide any evidence to favor one stent over the other. © 2021 Surgical Technology International™.

Index Keywords

acetylsalicylic acid, anticoagulant agent, clopidogrel, heparin; aged, angioplasty, artery disease, Article, calcification, diabetes mellitus, digital subtraction angiography, dual antiplatelet therapy, duplex Doppler ultrasonography, endovascular surgery, female, femoral artery, follow up, human, hypercholesterolemia, hypertension, in-stent restenosis, major clinical study, male, mortality, mortality rate, outcome assessment, popliteal artery, prospective study, surgeon, target lesion revascularization, vascular patency

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