Combined directional atherectomy and drug-eluting balloon angioplasty for isolated popliteal artery lesions in patients with peripheral arterial disease

K. Stavroulakis, T. Bisdas, G. Torsello, A. Schwindt; Münster/DE

Purpose: To evaluate the mid-term results of combined directional atherectomy (DA) and drug-eluting balloon (DEB) angioplasty for atherosclerotic lesions of the popliteal artery (PA).

Material and methods: Patients treated by combined DA and DEB angioplasty for isolated PA lesions between October 2009 and February 2014 were prospectively included in this study. The main outcome measure was the primary patency rate (PPR). Secondary outcomes were the technical success rate (TSR) and the secondary patency rate (SPR).

Results: Twenty-one patients (n=21) were included into this study. Eighteen patients (86%) presented with lifestyle-limiting intermittent claudication and three (14%) with critical limb ischaemia. The mean follow-up amounted to 18±12 months. Fifteen lesions (71%) were de-novo lesions of the PA. The TurboHawk atherectomy device was used in 71% (n=15) of the patients, with the SilwerHawk peripheral plaque excision system used in the remaining patients (n=6, 29%). The TSR was 90% (n=19). The PPR based on Kaplan-Meier estimates at 12 and 18 months was 95% and 90%, respectively. The SPR of this cohort was 100%. Complications observed included a perforation of the PA and two puncture site haematomas. The early mortality was 0% and the late mortality rate of this series amount to 5% (n=1). None of the patients underwent amputation.

Conclusions: In this prospective single-arm study, the combined therapy of DA and DEB angioplasty for PA lesions showed a promising mid-term performance. The combination of DA and DEB may overwhelm the challenges raised from the mobility of the knee joint in highly selected patients.