Abstract

Objective(s): Drug-coated balloons (DCB) and drug-eluting stents (DES) have significantly altered treatment paradigms for femoropopliteal lesions. We aimed to describe changes in practice patterns as a result of the infusion of these technologies into the treatment of peripheral arterial disease.

Methods: We queried the Vascular Quality Initiative (VQI) registry from 2010-2017 for all peripheral vascular interventions (PVI) involving the superficial femoral artery (SFA) and/or the popliteal artery. Cases were divided into a PRE and a POST era with a cutoff of September 2016 when specific device identity was first recorded in VQI. For each artery, a primary treatment was identified as either plain balloon angioplasty (POBA), atherectomy, DCB, bare-metal stent (BMS), or DES. The relative distribution of primary treatments between the PRE and POST eras
was evaluated, as were lesion characteristics associated with DCB and DES utilization and regional variability in the adoption of these new technologies.

**Results:** Of 210,666 arteries in the dataset, 91,864 femoropopliteal arteries (across 74,842 procedures in 55,437 patients) were included. Each artery received 1.5 ± 0.6 treatments. Primary treatment utilization changed from 40% balloon angioplasty, 45% stenting, and 15% atherectomy in the PRE era to 22% POBA, 26% BMS, 8% atherectomy, 37% DCB, and 8% DES in the POST era (P < .001). 43% of arteries received a drug-containing device as a primary or adjunctive therapy and 1.3% received both a DCB and DES in the POST era. DCB utilization as the primary treatment was highest in lesions with length 10-19.9 cm (42%), TASC A-C lesions (38%), and lesions with mild to no calcification (38%). DES utilization was highest in lesions with length 20+ cm (12%), TASC D lesions (13%), and lesions with moderate to severe calcification (9%). The range of utilization across 18 regions was 12-40% for DCB and 1-14% for DES. Regional variability was greater for DES (SD 4% vs. mean 8%) than for DCB (SD 7% vs. mean 29%).

**Conclusions:** There has been a rapid infusion of DCB and DES technology in the femoropopliteal vessels, with nearly half of arteries receiving a drug-containing therapy in modern practice. DCBs are most utilized in medium-length, minimally calcified lesions, while DESs are most utilized in longer, more heavily calcified lesions. There is significant regional variability in adoption, especially with DES.

**Author Disclosure Block:**