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Comparison of the trans-radial and trans-femoral approach in treatment of chronic total occlusions with similar lesion characteristics

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Objective: There is limited data on the efficacy and the safety of the Trans-Radial Approach (TRA) for Percutaneous Coronary Intervention (PCI) of Chronic Total Occlusion (CTO), particularly in comparison with the Trans-Femoral Approach (TFA) in lesions with similar complexity.

Methods: We included 358 patients, who underwent elective CTO PCI between January 2012 and August 2017 and compared the radial (179 patients) and femoral (179 patients) approaches. The J-CTO score was similar in both groups (TRA, 2.5±1.3 vs. TFA, 2.8±1.4, N.S.). The endpoints analyzed included: (1) the composite of all-cause death and nonfatal Myocardial Infarction (MI) and (2) the composite safety endpoint of major adverse cardiovascular and cerebrovascular events (MACCEs), including death, MI, coronary perforation, contrast-induced nephropathy (CIN), bleeding at the vascular access site requiring transfusion, cardiac tamponade requiring pericardiocentesis and periprocedural stroke.

Results: Patients' demographics, lesion location, lesion characteristics, and the proportion of antegrade vs. retrograde approach were similar in both groups. The procedural success rate of 96.4% in the radial group and 92.9% in the femoral group was comparable. The total fluoroscopy time (TRA, 42.4±15.7 min vs. TFA, 40.5±15.3 min, N.S.) and contrast medium use (TRA, 532.2±21.7 mL vs. TFA, 528.2±24.6 mL, N.S.) was similar in both groups. There was no in-hospital death or periprocedural MI in both groups. There were three coronary perforations in the TFA group, among them one with tamponade and one coronary perforation the TRA group. Vascular access site complications (TRA, 0.01% vs. TFA, 0.02%) and CIN (TRA, 0.006% vs. TFA, 0.006%) were rare. One stroke as a result of the procedure was observed in the TFA group. No death was registered.

Conclusion: The radial approach in CTO PCI was as fast and successful as the femoral approach, even in a complex lesion subset.

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