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Comparing CTO PCI strategies: DCB only vs. DCB-hybrid *vs*. DES

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Introduction: Percutaneous coronary intervention (PCI) in patients with chronic total occlusion (CTO) is often complex and requires different techniques to gain and maintain lumen.[1] We analyzed CTO PCI revascularization strategies and their outcomes regarding techniques used to obtain and maintain the true coronary lumen.

Patients and Methods: Single-center prospective coronary artery disease registry from Apr 2024 to Apr 2026 was used to identify 131 patients with elective CTO PCI with documented adequate demographic, clinical and angiographic characteristics, treatment strategies and follow-up. Comparisons were made regarding three different lumen gain strategies: drug coated balloon (DCB) only, DCB-hybrid, and drug eluting stent (DES)/bioadaptor only CTO PCI. DCB-hybrid technique was defined as at least one DCB and at least one DES or coronary bioadaptor used in the same CTO vessel.

Results: Successful PCI during the first attempt was recorded in 109 (83%). Additional 6 (5%) patients had a successful second attempt, with a total success rate of 115/131 (88%). Biradial/ulnar approach was used in 70 (61%) patients, whereas radial/ulnar with femoral and bifemoral approach were used in 33 (29%) and 15 (10%) patients, respectively. After successful recanalization, DCB only CTO PCI was performed in 24 (21%) patients, DCB-hybrid in 32 (28%) patients, whereas 59 (51%) of patients received DES or bioadaptor only strategy. There were no significant differences in demographic and clinical characteristics, or complications during CTO PCI among three groups. A composite MACE of cardiovascular death, myocardial infarction, stroke, and unplanned target vessel revascularization during follow-up was recorded in 1 (4.2%) patient with DCB only CTO PCI, 3 (9.4%) patients with DCB-hybrid CTO PCI, and 2 (3.3%) patients with DES or bioadaptor only CTO PCI, without significant differences in relative risk for MACE during a median follow-up of 13 months.

Conclusion: DCB only or DCB hybrid CTO PCI did not result in significantly higher incidence of complications and myocardial infarction or unplanned revascularization during follow-up after successful percutaneous CTO revascularization. Since patients with CTO have often diffuse coronary artery disease, DCB related strategies during CTO PCI seem safe and could result in better lifetime management of patients with CTO.

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LITERATURE

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