Application of the J-CTO Score to Recanalization for In-Stent Chronic Total Occlusions

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Purpose: The application of the J-CTO score for instent chronic total occlusion (CTO) recanalization remains unclear. We aimed to compare the role of J-CTO score in instent and de novo CTO interventions using wiring-based intraplaque tracking techniques.Methods: The application of the J-CTO score to assess procedural feasibility and guidewire crossing time for instent (N=74, 14.6%) and de novo CTO (N=434, 85.4%) interventions were evaluated in consecutive 508 patients (64.1±11.6 years, 446 men). Failed intraplaque tracking (N=3) or guidewires crossing (N=35) was considered procedural failures (38/508=7.5%).Results: The procedural success rate for de novo CTOs significantly declined when the J-CTO score was >2 (85 vs. <=2: 97%, p<0.001), but was comparable for instent CTOs (>2: 96 vs. <=2: 100%, p=0.400). Among 470 patients with successful recanalization, the guidewire crossing time >=30 minutes was required less for instent than for de novo CTOs (OR=0.40, 95% CI=0.18-0.86) with J-CTO score >=2 in multivariate analysis. For those with successful antegrade-only wiring, the guidewire crossing time shown by Kaplan-Meier curves was significantly related to the J-CTO score for either instent (N=72) or de novo (N=370) CTOs (both p<0.001 by log-rank test). However, only blunt stump (15.0±5.6 min) and occlusion >=20mm (16.2±5.6 min) were independent time-determining factors of guidewire crossing (both p<0.01) for instent CTOs. Conclusion: With the intraplaque guidewire tracking techniques, the effects of the J-CTO score on procedural feasibility and guidewire crossing time differ for instent and de novo CTOs. Therefore, the J-CTO score should be cautiously interpreted during instent CTO interventions.