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Objective : To develop a scoring model that predicts difficulty of PCI for CTO using coronary computed tomography angiography (CCTA). **Background :** Grading difficulty of CTO PCI can facilitate decision and planning of CTO PCI. **Methods:** We included 684 consecutive CTO lesions with pre-procedural CCTA from 4 centers. Endpoint was successful guidewire crossing <30 min. KCCT (Korean multicenter CTO CT registry) score was developed by summation of independent predictors identified by multivariate analysis and tested by exhaustive cross-validation. KCCT score was compared with procedural results and recently reported other prediction scores including angiography-based J-CTO, PROGRESS-CTO, CL-score, and CT-based CT-RECTOR scores. **Results:** Study endpoint was met in 51%. Independent predictors including proximal blunt entry, proximal side branch, bending, occlusion length >15 mm, severe calcification, calcification occluding whole vessel lumen, reattempt, and >12 month or unknown duration of occlusion constituted the KCCT score. The probability of successful guidewire crossing <30 min declined consistently from 100% to 0% according to KCCT score (0 to 8) ($p < 0.01$, all). KCCT score showed higher discriminative performance compared with the other scoring systems (c-statistics=0.79 versus 0.64 to 0.73, $p < 0.001$, all). The sensitivity, specificity, positive predictive value, and negative predictive value of KCCT score <4 for guidewire crossing <30 min was 71%, 73%, 71%, and 73%, respectively. KCCT score also showed consistent result with procedural success ($p < 0.01$, all). **Conclusion:** KCCT score could predict successful guidewire crossing within 30 min and also procedural success.