

Impact of Pre-Procedural Coronary CT Angiography on the Procedural Success of CTO PCI: A Multicenter Study of e-CTO Investigators

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Background: Coronary CT angiography (CCTA) has been used to predict procedural success of CTO PCI. However, the role of CCTA on the procedural outcome has not been reported in a large-scaled study. We investigated the impact of pre-procedural CCTA on the procedural success of CTO PCI on a patient-basis. **Methods:** We retrospectively compared 2,840 patients without pre-procedural CCTA (no CCTA group) and 658 patients with CCTA (CCTA group) from e-CTO, a Korean multicenter registry comprising 26 centers. Results were further confirmed in propensity-matched subgroup (N=1,316). **Results:** CCTA groups were younger (62.1+/-10.6 vs. 63.1+/-11.2), more were female (21.9% vs. 27.4%), more had CTO in right coronary artery (45.0% vs. 37.6%, p<0.05), and more risk factors. These differences were eliminated after matching of 21 variables. The unadjusted CTO PCI success rate was lower in CCTA group compared to non CCTA group (83.4% vs. 75.2%), and it was consistent in subgroup analyses by lesion location (LAD, 78.4% vs. 85.7%; LCX, 72.5% vs. 84.3%; RCA, 73.3% vs. 80.4%, p<0.05). The use of pre-procedural CCTA was related to 0.61-fold decrease of odds for procedural success (95% confidence interval (CI)=0.49-0.74, p<0.001) in unadjusted model. This result was confirmed in covariate-adjusted model (OR=0.57, 95% CI=0.45 - 0.71) and in propensity-score matched model (OR=0.61, 95% CI=0.47 - 0.80, p<0.001). **Conclusions:** Pre-procedural CCTA did not show beneficial impact on the procedural success of CTO PCI in our multicenter registry. Careful selection or sophisticated CCTA analytic methods would be required to demonstrate the clinical role of pre-procedural CCTA before CTO PCI.