Methods: From 105 patients (male gender 79%, age 61.6±11.0 years), the average degree and direction of collateral flow in 121 totally occluded vessels was compared to the transluminal attenuation gradient of vessel distal to total occlusion (TAGdistal) derived from 64-detector row CCTA. TAG is defined as the linear gradient of luminal attenuation along coronary artery, and was validated against angiographic stenosis and flow velocity in our previous study.

Results: TAGdistal increased consistently and significantly with the degree of collateral flow, from -4.43±3.02 HU/mm for Rentrop score 0 to 0.82±1.18 HU/mm for Rentrop score 3 (p<0.0001). TAGdistal was also significantly higher in retrograde flow compared to anterograde collateral flow (2.44±3.04 HU/mm vs 1.33±2.25 HU/mm, p<0.0001). The large-caliber occluded collateral vessel that have Rentrop score 2 or 3, which was found in 42.1% (51/121), could be predicted by the TAGdistal cutoff value of > -1.28 HU/mm with area under receiver operating characteristic curve of 0.689, and with a sensitivity and specificity, positive and negative predictive value of 86.5%, 47.1%, and 54.3%, 82.5%, respectively.

Conclusions: As far as we know, this is the first study showing that CT can evaluate coronary collateral flow. Using TAG method, CCTA appears to be able to measure quantitatively the degree and direction of coronary collateral circulation, and predict angiographically well developed collateral vessels. These abilities of CCTA may be useful for evaluation of patients with complex coronary artery disease.

TCT-74
Impact of Pre-Procedural Coronary CT Angiography on the Procedural Success of Percutaneous Coronary Intervention for Chronic Total Occlusion: A Multicenter Study of e-CTO Investigators

Jin-Ho Choi1, Young-Bin Song1, Joo-Yong Hahn1, Seung-Hyuk Choi1, TCT-74 to measure quantitatively the degree and direction of coronary collateral circula-

Conclusions: The unadjusted CTO PCI success rate was lower in patients who underwent quantitative angiography at baseline and 12-18 months follow-up. Thirty-one lesions were investigated with IVUS. All analyses were performed on 264 angiographic changes of were assessed with quantitative coronary angiography as differences in minimal, mean and maximal lumen diameter (MinLD, MeanLD and MaxLD, respectively). Vessel remodeling was assessed with IVUS as changes in lumen, plaque and vessel volume.

Results: At follow-up, MinLD increased 23.9% (from 0.88±0.32 to 1.09±0.35mm; p<0.01), MeanLD 16.4% (from 1.59±0.44 to 1.85±0.45mm; p<0.01) and MaxLD 11.7% (from 2.39±0.67 to 2.67±0.70mm; p<0.01). Lumen enlargement was greater in non-restenotic lesions, small lumen area at baseline and low LDL-cholesterol levels during the study period. By IVUS, lumen increased 26.9% (from 108.1±89.2 to 137.1±115.3mm3; p<0.01). The vessel increased 12.1% (from 207.1±170.2 to 232.2±196.0 mm3; p<0.01) and plaque tended to decrease (-3.9%, from 98.9±88.7 to 94.2±89.3 mm3; p=0.07). Small lumen at baseline was related to greater lumen enlargement.

Conclusions: Distal segments to re-canalized CTO show a notable lumen and vessel enlargement with a trend towards of mild plaque regression. Low LDL-cholesterol levels during the study increases lumen enlargement. Angio-

graphic lesions distal to CTO may change and stent implantation must be discouraged.

TCT-76
Predictive Value of the J-CTO Score in Percutaneous Coronary Interventions for Chronic Total Occlusions

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Background: Introduction: The J-CTO score has been shown to predict successful guidewire crossing within 30 minutes in percutaneous coronary intervention (PCI) or coronary bypass surgery in multicenter large-scaled study. We assessed the hypothesis that the J-CTO score is a useful risk score for the prediction of procedural failure of PCI for CTO in a different cohort of patients.

Methods: Methods The study included all consecutive patients undergoing PCI for CTO at 3 tertiary PCI centres between January 2004 and December 2011. The J-CTO score assigns 1 point to each of the following: calcification, bending, blunt stump, occlusion length ≥ 20 mm, and previously failed lesion and classification lesions severity (score of 0: no lesion; 1: intermediate of score 0); difficult (score of 1), difficult “2”, and very difficult “3” according to the score of 2, and very difficult “score of ≥3”.

A multivariable mixed effect logistic regression for clustered data was used to assess the impact of J-CTO score on PCI failure model. Calibration was assessed as difference between predicted probabilities with the worst or best prognostic (PSEP). Areas under receiver-operating characteristic curve (AUC) were computed.

Results: Results A total of 1261 patients, median age 63 yrs-old (25th-75th percentile, 55-72), undergoing PCI for 1418 CTO were included. PCI failure occurred in 410 (28.9%) lesions. Failure rate significantly increased with increasing J-CTO score (13.6%, 24.7%, 37.0%, 44.8%, in the group with J-CTO score of 0, 1, 2, ≥3, respectively, p<0.001). At multivariable logistic regression J-CTO score was a significant predictor of failure (odds ratio 1.68, 95% confidence interval CI) 1.43-1.97, p<0.001, for each unit increase in J-CTO score). PSEP was 0.34 and 0.33 in a model containing J-CTO score only, or including J-CTO score in a score. The AUC of a model containing J-CTO score only was significantly higher than AUC of a model containing J-CTO score in addition to clinical, procedural variables and vessel site (0.77, 95% CI 0.75-0.80, vs. 0.71, 95% CI 0.69-0.74, p<0.001).

Conclusions: The J-CTO score is an independent predictor of failure of PCI for CTO and has a good predictive accuracy as stand-

TCT-77
Initial and Mid-Term Angiographic Outcomes of Septal Channel Perforation Related to Retrograde Recanalization for Chronic Total Occlusions

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Background: Septal channel perforation occurs rarely in retrograde recanalization via septal channel for chronic total occlusion (CTO) lesions. There has been little data on mid-term angiographic outcomes of septal channel perforation.

Methods: Septal channel (from left coronary artery to right coronary artery with cardiac tamponade) if septal channel perforation were formed. The septal channel was used in 55.2% (267/484), and its in-hospital outcomes were no major adverse cardiac events and 1 cardiac tamponade. The incidence of septal channel perforation was 15.4% (41/267). In septal channel perforation cases, we used the coil (n=5), fat tissue (n=2), balloon dilatation (n=3), and protamine (n=15). Of

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