The number of renumber procedures were exponentially increasing during the last 2 years and were associated with high success, low major complications rates and good outcome.

**TCT-199**

**Improvment Of Left Ventricular Function Assessment By Global Longitudinal Strain After Successful Percutaneous Coronary Intervention For Chronic Total Occlusions**

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**Background:** Little is known of the potential effects of successful revascularization of chronic total occlusions (CTO) on left ventricular (LV) function. LV global longitudinal strain (GLS) is a more sensitive measure of LV mechanics than LV ejection fraction (EF). GLS can be assessed with two-dimensional speckle-tracking echocardiography (2DSTE) and is significantly related to long-term clinical outcome in patients with chronic ischemic heart disease. This study was conducted to investigate the impact of revascularization of CTO on LV function using LV GLS.

**Methods:** A total of 70 patients (66±8.9 years, 59 males, LVEF 52.1±12%) with CTO who underwent percutaneous coronary intervention (PCI) were included in this study. Echocardiography was performed before the procedure and 9 months after the procedure with conventional assessment including LV end-diastolic and end-systolic volume (LVEDV, LVESV), LVEF, and with 2DSTE analysis of GLS.

**Results:** Successful PCI (TIMI 3 flow) was obtained in 60 patients (86%). There were no stent thromboses during follow-up. GLS showed a significant improvement 9 months after successful PCI (0.21±2.28% vs -0.01%, p<0.01), whereas that in failed PCI group did not change significantly (0.2±0.4% vs 0.49%, p=0.49). ΔGLS is greater in successful PCI group than failed group (p=0.005). LVEF, LVEDV and LVESV did not change during follow-up in both successful and failed groups.

**Conclusions:** Successful PCI for CTO improves left ventricular function assessed by LV GLS. This improvement may be associated with the long-term beneficial effect of PCI for CTO lesions.

**TCT-200**

The impact of presence of the chronic total occlusion on the prognosis of the patients with well-preserved left ventricular function after suffering from acute myocardial infarction

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**Background:** Chronic total occlusion (CTO) in the non-infarcted-related artery was reported to worsen immediate clinical outcome in patients with acute myocardial infarction (AMI). However, the prognosis of such patients with preserved left ventricular function has not been clarified yet. Our objectives were to evaluate whether the presence of CTO solely contributes to worsen the prognosis in the patients with well-preserved heart function after primary PCI.

**Methods:** We retrospectively evaluated 370 consecutive AMI patients with preserved left ventricular function (left ventricular ejection fraction; LVEF >40%) who underwent primary percutaneous coronary intervention (PCI) in our hospital between January 2008 and December 2012. AMI patients complicated with cardiopulmonary arrest out of the hospital (n=33), leaving the main trunk culprit lesion (n=23), and diagnosed after 24 hours from the symptoms onset (n=7) were excluded from total study population.

**Results:** Of those, 26 (7.0%) patients had CTO lesions in a non-infarct related artery (CTO patients). The LVEF estimated by echocardiography after primary PCI was similar between CTO patients and patients without CTO lesion (non-CTO patients) (55.5±6.8% vs 57.7±9.4%; p=0.06). CTO patients were significantly more likely to be associated with cardiogenic shock (23.1% vs 9.0%; p<0.05) and to require intraaortic balloon pumping (57.7% vs 13.1%; p<0.001) and an extracorporeal membrane oxygenator (7.7% vs 1.7%; p<0.05) for hemodynamic support during PCI when compared with non CTO patients. Cardiogenic shock and 30-days mortality were significantly higher in CTO patients compared with non-CTO patients (23.1% vs 9.0%; p<0.05, 7.7% vs 0.9%; p<0.05, respectively). By multivariate analysis, 30-days survival as well as cardiogenic shock were independently associated with CTO (odds ratio [OR] 9.44, 95% CI 1.51-59.26, p=0.04, 0.03, 95% CI 1.13-8.10, p=0.03, respectively).

**Conclusions:** In patients with AMI, even if their LVEF were preserved, CTO was strongly associated with cardiogenic shock and high mortality.

**TCT-201**

**Outcomes From The UK Hybrid CTO Registry**

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**Background:** Chronic total occlusion (CTO) percutaneous coronary intervention (PCI) has evolved significantly with the development of the ‘hybrid’ approach. We sought to review the outcomes after PCI in a multi-centre registry of ‘hybrid’ trained operators in the United Kingdom (UK).

**Methods:** The UK Hybrid CTO registry is a multicenter registry comprising consecutive patients undergoing PCI for CTO in 7 UK centres (10 operators). Procedures for CTO PCI were performed in 991 patients for 173 CTO lesions (157 patients) successfully revascularized between August 2011 and January 2014. All continuous variables are presented as mean ± standard deviation, and categorical variables as percentages.

**Results:** Mean age of the cohort was 64±10.2 years. 74% were male. 26% of patients had a prior PCI attempt and 22% had undergone previous surgical revascularization. Lesion complexity was high (average J-CTO score of 2.5±1.4, 71% had a J-CTO score of 2 or higher). Average lesion length was 28±21mm. Initial procedural strategy was antegrade wire escalation (AWE) in 62%, antegrade dissection re-entry (ADR) in 12%, retrograde wiring (RW) in 12% and retrograde dissection re-entry (RDR) in 14%. The average number of strategies utilized was 1.5 ± 0.7. The final strategy was AWE (47%), ADR (22%), RW (8%) and RDR (23%). Technical success rate per procedure (TIMI 3 flow and < 30% stenosis) was 76%. Per patient success rates (including repeat attempts) was 99%, highlighting the value of an ‘investment’ procedure. Mean wire crossing time was 41±38 minutes. Procedural time was short (mean 108±46minutes) with 66% of cases completed in less than 2 hours. Contrast (mean 303±121ml) and radiation (mean fluoroscopy time 41±23minutes, mean dose area product 1420±985Gycm2) exposure were relatively low. The in-hospital major adverse cardiac event (MACE) rate was 1.1%. 30 day outcomes were favourable with a MACE rate of 14%. The mortality rate was 0.2%, whilst unscheduled target vessel revascularization was 0.5% (all stent thrombosis). Stroke occurred in 0.5%.

**Conclusions:** A hybrid approach to CTO-PCI is associated with high success rates and low complications rates in the treatment of complex chronic total occlusion.

**TCT-202**

**Clinical Outcomes of Guidewire Induced Vessel Injury in Retrograde versus Antegrade Approach for Percutaneous Intervention of Chronic Total Occlusions: Insights from Intravascular Ultrasonography**

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**Background:** We compared the in-hospital and the long-term clinical and angiographic outcomes of the various intravascular ultrasound (IVUS) detected guidewire (GW) induced coronary vessel injuries, following successful crossing of the CTO segment between antegrade and retrograde approaches.

**Methods:** Two independent observers retrospectively analyzed all IVUS images of 173 CTO lesions (157 patients) successfully revascularized between August 2011 and November 2012 in a high volume CTO center. IVUS detected GW induced coronary vessel injuries were compared between the antegrade (113 lesions in 102 patients) (Ante. group) and retrograde (60 lesions in 55 patients) (Retro. group) approaches, as were the in-hospital and the long-term clinical and angiographic outcomes.

**Results:** IVUS showed that, in the Retro group, the GW more often tracked subintimal- and induced dissections and coronary hematomas (p value for all was < 0.001)(Table), while the final subintimal stenting was similar in both groups (p=0.47). Patients in the Retro group were likely to have an increased risk of peri-procedural myocardial infarctions (p=0.07), angiographic dissections (p=0.001), slow flow (p=0.02), and perforations (p=0.02). There was no significant difference between the 2 groups regarding binary restenosis or target lesion revascularization (p=0.37, and p=0.64, respectively). Five patients in the Retro group (9.4%) and one in the Ante group (1%) died at one year (p=0.02), mostly due to non-cardiac death.