Conclusions: P-MI following CTO intervention was associated with higher 2-year mortality, any MI and TVR-MACE. Careful procedure to minimize P-MI will be warranted to get optimal CTO intervention outcomes.

Methods: From January 2007 to January 2012, 5568 PCI were performed in our hospital. Of them were CTO PCI. A total of 405 patients undergoing PCI for CTO procedures were studied. Patients were grouped according PCI year performing, CTO complexity (J CTO score was calculated for all patients), approach (anterograde or retrograde) and PCI results (successful or unsuccessful).

Results: The median age of patients was 64 years (38-88) and 76% were male. Retrograde approach (RA) was used in 318 (28.7%) cases. RA usage had increase from 15.9% in 2007 till 46.8% of cases in 2012. The overall patient and procedure success rates were 77.8% (315/405) and 69.9% (340/484) respectively. Overall success rate has increase from 61.4% in 2007 till 87.1% in 2012 (p < 0.005). For less complex CTO lesions (J CTO score 0-1) retrograde approach was used in 51% and 19.8% of cases respectively, for intermediate complex lesions (J CTO score 2 and 3) in 28.5% and 42.3% respectively, for very complex lesions (J CTO score 4) in 70.6% of cases (p < 0.001). Total complication rate was 13.7%. In anterograde patients group 11.4%, in retrograde patients group 19.6% P < 0.018). In anterograde procedures group has found better survival results in successful procedures group, but difference was not significant (Long-rank test p = 0.192). In retrograde procedures group also better survival was found in successful procedures group and difference was significant (Long-rank test p = 0.012). In unsuccessful procedures group was found similar survival results in both – anterograde and retrograde groups (Long-rank test p = 0.751). Overall survival was found better in patients group after successful procedure (Long-rank test p = 0.019).

Conclusions: Retrograde approach usage significantly increase CTO PCI success rate. Long-term outcome and survival after CTO PCI is not depending on approach (anterograde or retrograde), but on procedural success.

TCT-361 Prognostic Impact of Non-Infarct-Related-Artery Chronic Total Occlusion Revascularization in Patients with Acute Myocardial Infarction Treated by Primary Angioplasty
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Background: Registries and randomized trials have shown that non-infarct-related-artery (IRA) chronic total occlusion (CTO) carries a poor early and late outcome in patients with acute myocardial infarction (AMI) treated with primary percutaneous coronary intervention (PCI). We sought to investigate the prognostic impact of a staged successful CTO-PCI in patients with AMI treated with primary PCI.

Methods: From 2003 to 2011, 1,756 patients underwent primary PCI. Out of these, 212 (12%) had a concurrent non-IRA CTO; in 70 patients (33%) a staged CTO-PCI attempt was performed and was successful in 53 (76%). The 6-month cardiovascular mortality in the successful revascularization of CTO (s-CTO; n=53) group was compared with the persistently occluded CTO (o-CTO; n=159) group. Multivariable analysis was performed to identify independent predictors of mortality.

Results: The mean age was lower in s-CTO than o-CTO (64 ± 11 vs. 69 ± 13; p=0.010) and left anterior descending artery (LAD) PCI rate was higher in s-CTO (32% vs. 18%; p=0.034). There were no differences between groups in the incidence of diabetes (17% vs. 15%), anterior AMI (45% vs. 40%) and Killip class 3-4 on admission (23% vs. 26%). All patients with successful CTO-PCI received DES in CTO lesions. In the s-CTO group a complete coronary revascularization was achieved in 92% of patients. The 6-month clinical follow-up rate was 100%. The cardiovascular mortality rate was 1.9% in the s-CTO group and 16.4% in the o-CTO group (p=0.006). At multivariate analysis s-CTO (HR 0.06; p=0.008) and Killip class 3-4 on admission (HR 14; p=0.001) resulted independent predictors of mortality.

Conclusions: In the setting of high risk patients with AMI and a concurrent non-IRA CTO, the successful CTO-PCI after primary angioplasty was associated with an improvement in survival. These data support the benefit of complete coronary revascularization in this subset of patients with AMI.

TCT-362 Percutaneous Coronary Intervention for Multiple Chronic Total Occlusions
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Background: The aim of this study was to determine the impact on survival of successful percutaneous coronary intervention (PCI) of multiple coronary total occlusions (CTO). No data exist about PCI and clinical outcome in patients with multiple CTOs.

Methods: The Florence CTO registry includes patients treated with drug-eluting stent for ≥ 2 CTOs (n=53). From this dataset, we examined consecutive patients with ≥ 2 CTOs. Patients were stratified into successful PCI of all attempted CTOs, and partially successful PCI (1 CTO PCI successful) or failed PCI (no CTO PCI success). The primary end point of the study was cardiac survival.

Results: Out of 1,035 CTO patients, 120 (11.8%) underwent PCI for ≥ 2 CTOs (a total of 249 CTOs). PCI was successful in 195 CTOs, and in 76 patients (63.3%) PCI was successful in all attempted lesions, while in 34 patients PCI CTO was partially successful, and in 10 completely unsuccessful. Cardiac mortality at 12 months was lower in the CTO PCI success group than CTO PCI failure or partial success group
Occlusions with Retrograde Approach

Long-Term Outcomes of Percutaneous Coronary Intervention for Chronic Total Occlusion (CTO) be a Useful Predictor of Successful Revascularization in CTO-PCI?; Comparison with the J-CTO Score.

Methods: We evaluated whether the CTO score focused on the evaluation of CTO lesions (the Sys-CTO score) could predict successful revascularization for CTO-PCI or not, compared with the J-CTO score. We investigated the Sys-CTO score and the J-CTO score in consecutive 257 lesions treated with coronary angioplasty for CTOs. The Sys-CTO score was available focused on each CTO lesion by extracting from the SYNTAX Calculator 2.11. The J-CTO score was determined by assigning one point for each independent parameter using the J-CTO score sheet.

Results: Overall successful revascularization rate was 85.2% (219/257), and the average of the Sys-CTO score and the J-CTO score were 12.3±6.2 and 1.7±1.3, respectively. We divided all CTO lesions into two groups: the successful revascularized group (n=219; SG) and the failed revascularized group (n=38; FG). Relationship between the value of the J-CTO score and successful revascularization rate (%) were shown as follows: (0):100,(1):93.4,(2):82.5,(3):67.4,(4):73.9,(5):66.7, respectively. As for the J-CTO score, there were statistically different between the two groups: SG:1.6±1.3, FG:2.7±1.1 (P<0.05). Whereas, as to the Sys-CTO score, there were balanced between the two groups: SG:12.3±6.3, FG:12.3±5.2. In the detailed evaluation of the Sys-CTO score, these six parameters seemed to be predictive factors inhibiting successful revascularization (P<0.05). Beyond the segment visualization contrast (segment FG:34.2%; SG:25.1%), Blunt stump (FG:61.3%; SG:45.2%), Bridging (FG:34.2%; SG:12.3%), Severe tortuosity (FG:26.3%; SG:10.4%), Heavy calcification (FG:42.1%; SG:23.7%), Diffuse diseased and narrowed segment (FG:36.8%; SG:31.5%).

Conclusion: The J-CTO score was reconfirmed as the predictor of a successful revascularization for CTO-PCI. On the other hand, the Sys-CTO score could not be predictive factor by itself. However, these distinctive six parameters could be a useful predictor of a successful revascularization for CTO-PCI as well as the J-CTO score.

TCT-364

Long-Term Outcomes of Percutaneous Coronary Intervention for Chronic Total Occlusions with Retrograde Approach

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Background: There is a paucity of data on the long-term clinical outcomes of successful percutaneous coronary intervention (PCI) of coronary chronic total occlusions (CTO) using the retrograde approach.

Methods: We performed a retrospective analysis of the long-term clinical outcomes of 193 consecutive patients who underwent successful CTO PCI at our institution between December 2008 and December 2011.

Results: Mean age was 63.6±8.3 years. 98% of patients were men. 42% had diabetes, 20% had prior coronary artery bypass graft (CABG) surgery and 34% had prior PCI. The retrograde approach was used in 41 patients (21.2%). The CTO target vessel was more frequently the right coronary artery among patients who underwent retrograde CTO PCI (78.1% vs. 45.7%, p<0.001). The mean stent length was longer in the retrograde group (83.3±32 vs. 64.3±32 mm, p<0.001). During a median follow-up of 2.0 years (interquartile range, 1.36 to 3.22 years), compared to antegrade CTO PCI group, patients who underwent retrograde CTO PCI had higher target lesion revascularization (TLR) (45.6% vs. 25.7%, p=0.006) (Figure 1). There was no significant difference in the incidence of death, myocardial infarction, non-target vessel revascularization or CABG between the two groups.

Conclusions: Retrograde CTO PCI was associated with higher incidence of TLR, but similar incidence of death and myocardial infarction. These findings likely reflect the higher complexity of CTO lesions and long stent lengths needed in those treated with the retrograde approach.

TCT-365

Prognostic Implication of Left Anterior Descending Artery in Patients with Chronic Total Occlusions and Complete Coronary Revascularization.

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Background: Coronary chronic total occlusion (CTO) is frequently associated with multivessel disease. Large registries have shown a higher mortality in patients with unsuccessful CTO-PCI for left anterior descending artery (LAD) as compared to non-LAD-CTO. Furthermore, patients with incomplete coronary revascularization due to non attempted or failed CTO-PCI had a poor prognosis as compared to patients with a complete revascularization. No data exist about the prognostic impact of drug eluting stent (DES) supported successful PCI for LAD-CTO in patients with a complete coronary revascularization achieved by PCI.

Methods: From the prospective Florence CTO-PCI registry, since 2004 to 2010, 644 patients underwent a successful PCI for CTO (>3 months) with a complete coronary revascularization within one month. The prognostic impact of LAD-CTO on cardiac mortality was assessed by Kaplan-Meier estimation and by forward stepwise Cox regression multivariate analysis.

Results: A successful CTO-PCI with a complete coronary revascularization was achieved in 194 patients with LAD-CTO and in 450 patients with non-LAD-CTO. Baseline characteristics of patients with LAD-CTO vs. non-LAD-CTO were similar: mean age 68±11 vs. 67±11 yrs, male 83% vs. 86%, diabetes 22% vs. 23%, previous myocardial infarction 51% vs. 48%, acute coronary syndrome at admission 34% vs. 29%, 3-vessel coronary disease 43% vs. 48%, left ventricular ejection fraction (EF) 44%±13 vs. 45%±12, stent length >40 mm in LAD-CTO 51% vs. 57% in non-LAD-CTO. A multivessel PCI was performed in 70% of both groups. The clinical follow-up rate was 100% (median 1 year). The cardiac survival rate was higher in the non-LAD-CTO group as compared to LAD-CTO group (96%±2% vs 89%±3%; p=0.004). At multivariate analysis the independent predictors related to cardiac mortality were LAD-CTO (HR 2.9; p=0.025), age (HR 1.1; p=0.002) and EF <40% (HR 1.4, p<0.001).

Conclusions: The successful treatment of non-LAD-CTO associated with a complete revascularization links with a very high survival rate. LAD-CTO is a predictor of cardiac mortality despite the completeness of coronary revascularization.

TCT-366

Short and Long-Term Outcomes After Retrograde Coronary Intervention for Chronic Total Occlusion: Comparison With the Antegrade Approach

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Background: Little data is available about safety, feasibility, and long-term outcome after retrograde CTO PCI. This study sought to examine the short and long-term outcomes of retrograde chronic total occlusion (CTO) percutaneous coronary interventional (PCI).

Methods: From a single-center prospective registry, 1343 consecutive patients underwent CTO PCI from January 2004 to January 2012.

Results: Of these, 144 (10.7%) had retrograde CTO PCI, 10.3, 10.2, 6.2, 15.6, 10.9, 16.1, 23.4% from 2004 to 2011). Patients with retrograde CTO were significantly younger (61±2.10.7 vs 63±1.14 years, p=0.001), more frequently dyslipidemic (72.9 vs 62.3%, p<0.001), right coronary artery CTO (65.3 vs 43.7%, p<0.001), longer lesion length (27.2±21.9 vs 19.6±16.5 mm, p<0.001) and less tapered morphology (31.7 vs 46.5%, p<0.001). Procedural success rate of antegrade and retrograde approach was 73.7 and 89.7%.