complications than PCI of non-CTO vessels. The cost of CTO PCI using the hybrid approach has not been described, and no prior studies have examined the impact of complications on in-hospital costs and length of stay (LOS).

METHODS Costs were calculated from 964 pts in the 12-center OPEN-CTO registry using prospectively collected resource utilization data and hospital billing data (for procedural and non-procedural costs, respectively). We developed multivariable models to estimate the incremental costs and LOS associated with specific periprocedural complications. Attributable costs and LOS for each complication were calculated by multiplying the independent cost of each event by its frequency in the population.

RESULTS Mean and median costs for the index hospitalization were $17,106 ± $9,887 and $14,758, respectively; 14.5% of patients experienced at least 1 complication. Pts with one or more complications had significantly higher hospital costs (by $8,612) and LOS (by 1.5 days) than pts without complications. Seven complications were independently associated with increased in-hospital costs (Table); clinically significant perforation and myocardial infarction had the greatest attributable cost per pt. Overall, complications accounted for $911 per patient in hospital costs (5.3% of the total cost) and 0.2 days of hospitalization.

Complication	Incremental Cost	95% CI	Attributable cost
Death	$13,276	$6,156 to $20,396	$110
Myocardial infarction	$7,862	$4,400 to $11,324	$212
Clinically significant peforation	$5,623	$2,574 to $8,671	$251
Vascular complication	$9,178	$2,901 to $15,455	$67
Contrast nephropathy	$8,285	$1,847 to $14,722	$69
Cardiac surgery	$15,601	$7,550 to $23,652	$81
Donor vessel thrombosis or dissection	$6,489	$2,335 to $10,643	$121
Total cost of complications			$911

CONCLUSION Periprocedural complications had a significant impact on both LOS and in-hospital costs for patients undergoing attempted CTO PCI. Methods to identify patients at high risk for complications and strategies to reduce risk of complications may reduce the costs of CTO PCI.

CATEGORIES CORONARY: Complex and Higher Risk Procedures for Indicated Patients (CHIP)

TCT-259

PERSPECTIVE Trial: Procedural, Clinical and Health Status Outcomes Among Patients Undergoing Chronic Total Occlusion Percutaneous Revascularization

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BACKGROUND Limited study has detailed the procedural, clinical and health status outcomes among patients undergoing chronic total occlusion (CTO) percutaneous coronary intervention (PCI) using contemporary methods.

METHODS The PERSPECTIVE trial included consecutive patients undergoing attempted CTO revascularization at a single center. Procedural and in-hospital outcomes, in addition to clinical events were assessed at baseline, 6 months and 1 year. The primary endpoint is 1-year occurrence of death, myocardial infarction and target lesion revascularization. Among a pre-specified cohort of 250 prospectively followed consecutive patients, health status (CCS angina, Seattle Angina Questionnaire, EQ5D) outcomes were ascertained at baseline, 6 months and 1 year. Additional secondary endpoints include procedural success, completeness of revascularization and 1-year MACE among patients treated with zotarolimus-eluting stents. An independent clinical events committee adjudicated all clinical endpoints. Coronary angiograms performed at baseline and follow-up, if clinically indicated, were reviewed by an independent angiographic core laboratory.

RESULTS Between June 2013 and March 2016, 491 consecutive CTO patients providing informed consent were enrolled. Angina class III/IV was 70.1%; diabetes, 35.4%; previous bypass surgery, 29.7%; prior attempted revascularization, 21.4%; and J CTO score, 2.5 ± 1.1. Technical success with guidewire crossing was 90.3%. A primary antegrade strategy was attempted in 67.8% of procedures, and the mean number of guidewires/case was 7.5 ± 4.6. Clinically significant perforation was 5.3%, and rates of in-hospital MI and death were 1.6% and 0.8%, respectively. The mean reduction in SYNTAX score with CTO PCI was 11.6 ± 6.7. Final 1-year clinical and health status outcomes will be reported.

CONCLUSION In a large series of patients undergoing attempted CTO PCI representing contemporary technique and strategy, the PERSPECTIVE trial informs the association between procedural results and the impact of CTO PCI on completeness of revascularization with clinical and health status outcomes.

CATEGORIES CORONARY: Complex and Higher Risk Procedures for Indicated Patients (CHIP)

TCT-260

Safety and Effectiveness of XIENCE Stents in Chronic Total Occlusion Revascularization: Long-Term Results from the EXPERT CTO Multicenter Clinical Trial

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BACKGROUND Limited long term data exists regarding chronic total occlusion (CTO) revascularization with modern techniques and new-generation drug-eluting stents. EXPERT CTO (NCT01435031) is a prospective, multicenter registration trial examining the safety and effectiveness of XIENCE everolimus eluting stents (EES) in CTO percutaneous coronary intervention (PCI) with dedicated long-term follow-up.

METHODS Among patients undergoing attempted CTO PCI and stent revascularization with Xience everolimus eluting stents (EES), the primary endpoint of major adverse cardiac events (MACE: death, ARC-defined myocardial infarction (MI), or clinically-driven target lesion revascularization [CD-TLR)] at 1 year was compared with a pre-specified performance goal derived from prior CTO studies. Additional key outcomes included target lesion failure (TLF: cardiac death, ARC-defined target vessel myocardial infarction [TV-MI], or CD-TLR) and individual component endpoints. Annual follow-up through 4 years was protocol mandated.

RESULTS Among 222 patients undergoing successful CTO PCI, treatment with EES was associated with significantly lower 1-year MACE for both intent-to-treat (ITT; 18.5%, 1-sided upper confidence interval: 23.4%, P=0.025) and per-protocol populations (8.2%, 1-sided upper confidence interval: 12.3%, P< 0.0001) compared with a pre-specified performance goal derived from 6 prior CTO drug-eluting stent trials (1-year MACE: 24.4%). Through 4 years, rates of MACE and TLF by ITT analysis were 31.6% and 24.1%, respectively. Four year TV-MI was 15.5%, and CD-TLR was 11.3%. There was no occurrence of definite/probable stent thrombosis (ST) after 1 year.

Clinical Event Rates	1 year (N=222)	Landmark 1-4 years (N=222)	4 years (N=222)
TLF (per ARC)	16.1% (34/211)	8.3% (15/180)	24.1% (45/187)
Cardiac Death	1.0% (2/210)	4.5% (8/179)	5.5% (10/181)
TV-MI (per ARC)	11.8% (25/211)	1.7% (3/173)	15.5% (28/181)
CD-TLR	6.7% (14/209)	4.0% (7/173)	11.3% (20/177)
ST (Definite/Probable)	1.4% (3/209)	0.0% (0/172)	1.7% (3/174)

CONCLUSION Late follow-up of the EXPERT CTO trial demonstrates durable outcomes related to the CTO target lesion with modest interval progression in TLR and no very late ST. These results confirm sustained long-term safety and efficacy of EES for CTO revascularization.

CATEGORIES CORONARY: Complex and Higher Risk Procedures for Indicated Patients (CHIP)

TCT-261

One-year outcomes of the hybrid CTO revascularization strategy: a sub-analysis of the multicenter RECHARGE Registr

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BACKGROUND Percutaneous coronary intervention (PCI) of chronic total occlusions (CTO) has historically been associated with higher event rates during follow-up (FU). The hybrid algorithm and contemporary antegrade and retrograde wiring and dissection re-entry (DR) techniques have the potential to further improve the long-term outcomes after CTO-PCI. The REgistry of CrossBoss and Hybrid procedures in FrAnce, the NetheRlands, BelGium and UnitEd Kingdom (RECHARGE) aims to assess the long-term clinical outcomes of the hybrid practice, when applied by operators with varying experience levels.

METHODS Between January 2014 and October 2015, 1165 patients were prospectively included by 17 centers. We examined the one-year clinical events according to technical outcome and final technique. The primary endpoint was major adverse cardiac events (MACE).

RESULTS ≥90% complete FU data up to 12 months of 1067 patients (92%; n=1067/1165) was provided by 13 centers. Mean FU duration was 362.8±0.9 days. One-year MACE-free survival was 91.3% (n=974/1067). MACE included death (1.9%; n=20), myocardial infarction (1.4%; n=15), target vessel failure (TVF) (5.9%; n=63), and target vessel revascularization (TVR) (5.5%; n=59). In two patients, TVF led to a myocardial infarction. In five patients, TVF was caused by an in-stent occlusion. Non-TVR was performed in 6.7% (n=71). Non-TVR via PCI was performed for the treatment of a second CTO lesion in 27% (n=19/71). The composite MACE endpoint was significantly in favor of successful CTO-PCI (8.0% vs. 13%; p=0.035), even after adjusting for baseline differences (adjusted hazard ratio=0.59; 95%CI 0.36-0.98; p=0.041). No differences in MACE or MACE components were observed according to technical outcome and final applied technique (DR vs. non-DR techniques).

CONCLUSION The use of the hybrid algorithm and contemporary techniques by moderate to highly experienced operators for CTO treatment is safe and is associated with a low one-year event rate. Successful procedures are associated with better a MACE rate. DR techniques can be used as first-line strategies alongside intimal wiring techniques.

CATEGORIES CORONARY: PCI Outcomes

TCT-262

Differential Prognostic Effect of Revascularization Between Chronic Total Occlusion with Left Ventricular Systolic Dysfunction and without that

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BACKGROUND Revascularization of chronic total occlusion in coronary artery is known to be associated with symptomatic improvement and long-term survival benefit. However, there has been a paucity of data about survival benefit of revascularization of chronic total occlusion in coronary artery according to existence of Left ventricular systolic dysfunction.

METHODS The patient pooled analysis was performed with 2173 patients with chronic total occlusion in coronary artery undergoing only medical therapy or revascularization from 3 Korean centers registry. The 8-year clinical outcomes were compared between non-revascularization (n=832) and revascularization (n=1341), stratified by existence of Left ventricular systolic dysfunction. The primary endpoint was a composite of all death or any myocardial infarction.

RESULTS In chronic total occlusion with Left ventricular systolic dysfunction or without, the primary endpoint at 8 years were significantly higher in non-revascularization than revascularization (with LVSD 36.1% vs. 20.6%, $p < 0.0001$; without LVSD 13.3% vs. 5.7%, $p < 0.0001$), which was mainly driven by reduction of death. This effects of revascularization on the prognosis according to the existence of LVSD were also corroborated with similar results by the inverse probability weighted model. In this model, the fitting cox proportional hazard analysis showed revascularization of CTO was the stronger independent predictor for survival benefit in CTO with LVSD (hazard ratio: 2.160; 95% confidence interval: 1.667 to 2.801; $p < 0.001$) than without LVSD (hazard ratio: 1.468; 95% confidence interval: 1.155 to 1.866; $p = 0.0017$).

CONCLUSION Regardless of existence of LVSD, revascularization showed better survival benefit than non-revascularization in CTO. However, the benefit was the greater in the CTO with LVSD than without.

CATEGORIES CORONARY: PCI Outcomes

TAVR COMPLICATIONS

Abstract nos: 263 - 267

TCT-263

Quality of Life Outcomes in Transcatheter Aortic Valve Replacement Patients Requiring Pacemaker Implantation

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BACKGROUND Permanent pacemaker (PPM) after Transcatheter Aortic Valve Replacement (TAVR) is associated with worse outcomes and mortality. However, its impact on QoL outcomes remains unknown. We hypothesize that implantation of PPM is associated with similar QoL outcomes after TAVR.

METHODS We included 383 consecutive patients undergoing TAVR from 2012-16 who completed a baseline Kansas City Cardiomyopathy Questionnaire (KCCQ-12) health survey. The clinical, laboratory, angiographic, QoL, mortality and occurrence of poor outcomes (KCCQ-12 score < 45 or KCCQ decrease of ≥ 10 points) were obtained.

RESULTS The mean age was 83 ± 8 years, 51% were males and majority were Caucasians (n = 364, 95%). PPM was implanted in 44 (11.5%) patients post-TAVR. Median duration of follow up was 9 [Interquartile Range: 1,13] months. PPM patients were more likely to have prior conduction disease including RBBB (25% vs. 12%, p=0.02) and PQ interval >250 ms (11% vs. 5%, p=0.07). Median KCCQ-12 scores at 1-month were significantly lower among patients undergoing PPM (84.7 vs. 68.8, p=0.04), but did not differ significantly at 1-year (86.5 vs. 90.6, p=0.5) post-TAVR (**Figure 1A**). Occurrence of poor outcome did not differ significantly among those with or without PPM at 1-month (11% vs. 7%, p=0.39) and 1-year (13% vs. 9%, p=0.45) respectively. However, patients with poor QoL outcomes at 1-month post-TAVR also had significantly worse mortality during follow up in unadjusted (31.3% vs. 4.5%, p<0.001) and adjusted (HR = 5.30, 95%CI: 1.85 - 15.22, p=0.002] analyses respectively (**Figure 1B**).