Table. One-year Clinical Outcomes of ACS and Stable Angina with Chronic Total Occlusion

Variables, N (%)	Success (n=1349)	Failure (n=308)	P value	Unadjusted HR (95% C.I)	Adjusted HR (95% C.I)
Acute coronary syndrome					
Total death	37 (2.7)	20 (6.5)	0.001	0.40 [0.23 - 0.71]	0.29 [0.11 -0.73]
Cardiac death	21 (1.6)	15 (4.9)	< 0.001	0.30 [0.15 - 0.60]	0.39 [0.12 -1.24]
Non-cardiac death	12 (0.9)	1 (0.3)	0.483	2.75 [0.35 - 21.2]	-
Unknown death	4 (0.3)	4 (1.3)	0.044	0.22 [0.05 - 0.90]	0.05 [0.01 - 0.28]
Myocardial infarction	12 (0.9)	5 (1.6)	0.224	0.54 [0.19 - 1.55]	-
ST-segment elevation	1 (0.1)	0 (0.0)	> 0.99	0.81 [0.79 - 0.83]	-
Non-ST-segment elevation	11 (0.8)	5 (1.6)	0.197	0.49 [0.17 - 1.44]	-
Revascularizations	92 (6.8)	21 (6.8)	0.999	1.00 [0.61 - 1.63]	-
Target lesion	58 (4.3)	15 (4.9)	0.660	0.87 [0.49 - 1.57]	-
Target vessel	91 (6.7)	21 (6.8)	0.964	0.98 [0.60 - 1.61]	-
Non-target vessel	5 (0.4)	1 (0.3)	> 0.99	1.14 [0.13 - 9.81]	-
MACE	131 (9.7)	40 (13.0)	0.088	0.72 [0.49 - 1.05]	-
Variables, N (%)	**Success (n=1055)**	**Failure (n=205)**	**P value**	**Unadjusted HR (95% C.I)**	**Adjusted HR (95% C.I)**
Stable angina					
Total death	12 (1.1)	1 (0.5)	0.706	2.34 [0.3 - 18.15]	-
Cardiac death	7 (0.7)	0 (0.0)	0.607	0.83 [0.81 - 0.85]	-
Non-cardiac death	3 (0.3)	1 (0.5)	0.509	0.58 [0.06 - 5.62]	-
Unknown death	2 (0.2)	0 (0.0)	> 0.99	0.83 [0.81 - 0.85]	-
Myocardial infarction	6 (0.6)	1 (0.5)	> 0.99	1.16 [0.13 - 9.74]	-
ST-segment elevation	1 (0.1)	1 (0.5)	0.299	0.19 [0.01 - 3.10]	-
Non-ST-segment elevation	5 (0.5)	0 (0.0)	> 0.99	0.83 [0.81 - 0.85]	-
Revascularizations	84 (8.0)	9 (4.4)	0.073	1.88 [0.93 - 3.81]	-
Target lesion	54 (5.1)	6 (2.9)	0.178	1.78 [0.75 - 4.21]	-
Target vessel	83 (7.9)	9 (4.4)	0.080	1.85 [0.91 - 3.76]	-
Non-target vessel	2 (0.2)	0 (0.0)	> 0.99	0.83 [0.81 - 0.85]	-
MACE	96 (9.1)	10 (4.9)	0.046	1.95 [0.99 - 3.81]	2.37 [0.83 -6-75]

HR; hazard ratio, C.I; confidence interval, MACE: major adverse cardiac events

CONCLUSION The effect of CTO intervention on major clinical outcomes may be different according to the patient's underlying pathology. A further study with larger study population is needed to determine whether this results can be reproducible or not for final conclusion.

CATEGORIES CORONARY: PCI Outcomes

TCT-469

Revascularization strategies in STEMI patients with multivessel disease and high risk of stent restenosis: 2-year clinical outcomes

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BACKGROUND Diabetes mellitus (DM), multivessel disease and complex lesion subsets, such as bifurcation, chronic total occlusions, long lesions and small vessels, have been identified as factors increasing the risk of restenosis and re-intervention after stenting. The impact of different revascularization strategies in patients presenting with ST-segment elevation myocardial infarction (STEMI) and multivessel disease at high risk of restenosis remains to be clarified. The present study aims to compare culprit only (CO), ad-hoc (AH) and staged revascularization (SR) strategy among STEMI patients with multivessel disease at highest risk for restenosis.

METHODS This is an observational, single-centre study evaluating subjects with STEMI and multivessel disease with high-risk of restenosis including at least one of the following: DM, interventions on complex lesions e.g. chronic total occlusions, total stent length >38 mm, minimal stent diameter ≤2.5 mm or bifurcation. Clinical outcomes categorized according to revascularization strategy are reported at 2 years post index procedure.

RESULTS A total of 519 STEMI patients at high risk of restenosis were selected for this analysis. CO, AH and SR strategies were adopted in 336 (64.7%), 89 (17.1%) and 94 (18.1%) patients. At two-year follow-up a higher rate of MACE [90 (26.8%) vs. 17 (9.3%), p = 0.001)], recurrent myocardial infarction [23 (5.4%) vs. 3 (3.3%), p = 0.027], re-PCI [63 (14.7%) vs. 3 (3.3%), p = 0.001], all-cause mortality [45 (13.4%) vs. 15 (8.2%), p = 0.081] was observed in CO, compared with the AH and SR groups. At multivariate Cox regression analysis CO revascularization strategy was an independent predictor of mortality (HR 1.88, 1.10 - 3.23, p = 0.023) and MACE (HR 3.1; 1.56 - 6.10, p = 0.001). No differences in clinical event rates were identified between the AH and SR approaches up to two years.

CONCLUSION Complete revascularization with either ad-hoc or staged approach could improve long-term outcome in patients at risk for restenosis.

CATEGORIES CORONARY: PCI Outcomes

TCT-470

Comparison of 5-year Clinical Outcomes between Stabilized Acute Myocardial Infarction Patients following Percutaneous Coronary Intervention and the Patients with Angina Pectoris

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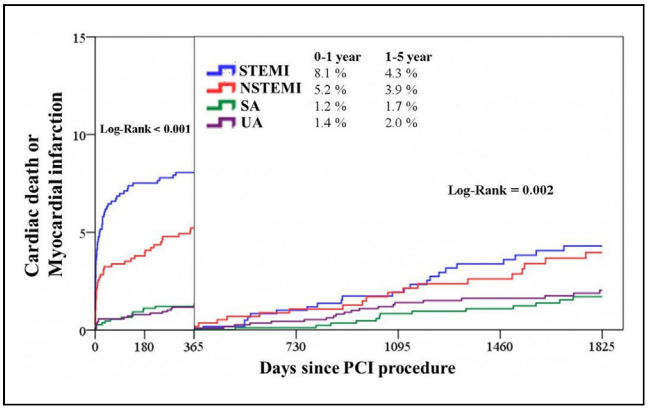
BACKGROUND Patients who have had a myocardial infarction (MI) remain at higher risk for ischemic events over the long term period. However clinical impact of stabilized MI following successful percutaneous coronary intervention (PCI) after 1 year is not clearly elucidated yet.

METHODS We pooled 3,583 patients underwent PCI with drug-eluting stents (DESs). Of them, 658 (18.4%) was ST-elevation MI (STEMI), 632 (17.6%) non-ST segment elevation MI (NSTEMI), 1,297 (36.2%) unstable angina (UA), and 996 (27.8%) stable angina (SA) as clinical presentation. We compared 0-1 year and 1-5 years composite of cardiac death (CD) and MI among 4 groups.

RESULTS With survival analysis of 0-1 year clinical follow up, a stepwise increase of the composite of CD and MI was observed in the transition from SA to STEMI. (SA; 1.2% vs. UA; 1.4% vs. NSTEMI; 5.2% vs. STEMI; 8.1%; Log-Rank < 0.001). Even in the comparison of 1-5 year long term clinical outcomes between stabilized patients with MI and angina pectoris, there was the same pattern of transition (SA; 1.7% vs. UA; 2.0% vs. NSTEMI; 3.9% vs. STEMI; 4.3%; Log-Rank = 0.002, Figure). After Unadjusted cox-proportional analysis, STEMI and NSTEMI were independently associated with greater risk of 1-5 year CD or MI rather than SA (STEMI; hazard ratio [HR] 2.70; 95% confidence interval [CI] 1.361 to 5.364; p = 0.004, NSTEMI; HR 2.45; 95% CI 1.201 to 5.001; p = 0.014), whereas UA were not significantly influenced on CD or MI (HR 1.27; 95% CI 0.633-2.558; p = 0.499).



CONCLUSION Across the clinical spectrum of different coronary artery disease, STEMI and NSTEMI were associated with a greater risk of long-term CD or MI at 1 year. Even after stabilized by PCI in STEMI and NSTEMI patients beyond 1 year, the incidence of CD or MI was still higher than that of the patients with UA and SA.

CATEGORIES CORONARY: Acute Coronary Syndromes

CONTRAST INDUCED NEPHROPATHY

Abstract nos: 471 - 475

TCT-471

The prognostic implications of a single higher contrast volume procedure vs. separate lower contrast volume staged procedures for percutaneous coronary intervention: a decision-analytical model to define the threshold for contrast:glomerular filtration ratio in determining the optimum strategy

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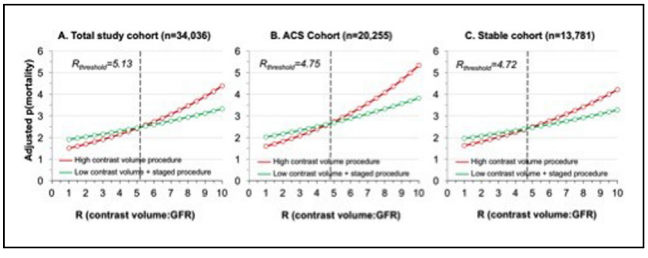
BACKGROUND Current guidelines recommend using the lowest possible contrast volume (CV) for percutaneous coronary intervention (PCI). Patients requiring complex PCI, may undergo single high CV procedures or separate low CV staged procedures. We determined the optimal threshold for CV:glomerular filtration rate (GFR) ratio (R) where the prognostic benefit of a high CV procedure is offset by low CV staged procedure.

METHODS We analyzed 34036 PCI patients (excluding STEMI) from the British Columbia Cardiac Registry. We determined R for each patient and adjusted mortality rates using logistic regression analysis to define probability distribution functions. A decision analysis model was constructed comparing a) single high CV procedure versus b) lower CV staged procedures (within 30 days). We examined 1-year mortality and used one-way sensitivity and probabilistic sensitivity analyses to define Rthreshold.

RESULTS The unadjusted 1-year mortality for total, ACS and stable cohort were 4.5%, 5.2% and 3.5%. Sensitivity analyses indicated Rthreshold values for the total cohort, ACS and stable cohort were 5.13, 4.75 and 4.72. Probabilistic sensitivity analyses using Monte Carlo simulation (106 simulations/analysis) indicated a single high CV procedure was the optimal strategy in 71%, 65% and 66% of the total, ACS and stable cohorts.



CONCLUSION This analysis incorporating real world data indicates that a higher CV for PCI may be tolerated compared to using lower CV but staged procedures. These data have important implications in current PCI era where increasing burden and complexity of PCI may require a greater CV.

CATEGORIES CORONARY: PCI Outcomes

TCT-472

Predictive Value of the Age, Creatinine, and Ejection Fraction (ACEF) Score in Patients with Acute Coronary Syndromes

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BACKGROUND The age, creatinine, and ejection fraction (ACEF) score (age/left ventricular ejection fraction+1 if creatinine >2.0 mg/dL) has been established for the risk prediction of patients evaluated for coronary artery bypass graft surgery. Data on its predictive value in "all-comers" patients with acute coronary syndromes undergoing percutaneous coronary intervention is lacking.

METHODS The ACEF score was calculated for 1901 of the 2168 patients prospectively enrolled in the Swiss Acute Coronary Syndrome Cohort between December 2009 and October 2012. Patients were divided according to ACEF score tertiles (T1 ≤1.057, >1.057 T2 ≤1.389, T3 >1.389). The primary endpoint was all-cause mortality. Major adverse cardiovascular and cerebrovascular events (MACCE) included all-cause death, non-fatal myocardial infarction, repeat coronary revascularization, definite stent thrombosis, and transient ischemic attack/stroke.

RESULTS One-year mortality increased with ACEF score tertiles (T1: 0.8%, T2: 2.1%, and T3: 10.7%, adjusted HR 3.89, 95% CI 2.50-6.06, p<0.01, Figure 1). Rates of MACCE (adjusted HR 1.75, 95% CI 1.43-2.14, p<0.001), non-fatal myocardial infarction (adjusted HR 1.44, 95% CI 1.01-2.05, p=0.04), and transient ischemic attack/stroke (adjusted HR 4.20, 95% CI 2.03-8.67, p<0.001) were more frequent in patients with higher ACEF scores. The rate of TIMI major bleeding increased with higher ACEF score tertiles (T1: 2.2%, T2: 2.4%, and T3: 5.2%, adjusted HR 1.92, 95% CI 1.32-2.81, p=0.001).

Figure 1