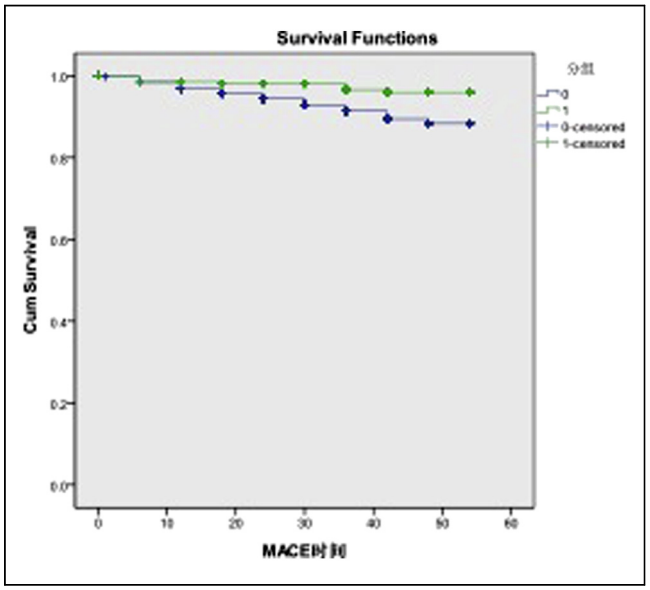

CONCLUSIONS It is safe and possible to obtain an ideal clinical outcome by earlier complete revascularization after primary PCI for STEMI patients with multivessel disease.

CATEGORIES CORONARY: Acute Myocardial Infarction

KEYWORDS Acute myocardial infarction, Complete coronary revascularization, Primary percutaneous coronary intervention

TCT-271

Inducing Angiogenesis With A Trans-coronary Sinus Catheter Intervention (PICSO) In A Porcine Ischemia/Reperfusion Model

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BACKGROUND Activating cardio venous endothelium with a trans-coronary sinus catheter intervention (PICSO) by mechanotransduction and reversing blood flow in coronary circulation, not only reduces ischemia and microvascular obstruction, but may also reopen pathways for endogenous repair. We assessed the hypothesis that a coronary sinus catheter intervention substantiates angiogenesis in an ischemia/reperfusion model.

METHODS 32 open chest pigs received: sham-operation (n=3); PICSO normal perfusion (PICSO-A, n=10); Infarct and reperfusion (control-group, n=8), ischemia and reperfusion with PICSO (PICSO-B, n=11). LAD was occluded for 3 hours followed by 1 hour reperfusion. Duration of PICSO was 4 hours in normal hearts and was induced after 30 minutes ischemia continuing through reperfusion (3.5 hours). Specimen were taken from: LAD region (infarct), adjacent zones Border1 and 2, Circumflex region remote R, Right ventricle RV. VEGFR1, 2 positive arteries and veins were calculated as percentage of total number of vessels using confocal-microscopy.

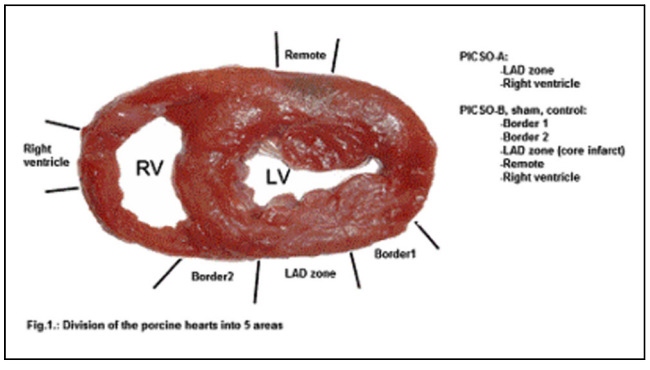

Fig.1.: Division of the porcine hearts into 5 areas

RESULTS VEGFR1 was significantly upregulated in arteries and veins of Border1 in PICSO-B, during normal blood flow in LAD regions of PICSO-A and RV in both interventional groups as compared to controls ($p<0.05$). VEGFR2 expression in arteries was significantly upregulated in Border1 ($p<0.001$) and Border2 ($p<0.05$) in PICSO-B as compared to controls and in arteries of LAD and RV areas of both PICSO groups as compared to control ($p<0.05$), whereas no upregulation was found in arteries in R. Significant upregulation could be found in veins in all areas of the PICSO groups as compared to control and sham-operated animals ($p<0.05$).

CONCLUSIONS Significant upregulation of angiogenesis proteins in coronary vessels by activation of PICSO in arteries and veins induces regenerative pathways leading to induction of angiogenesis and structural repair. The trans-coronary sinus catheter intervention PICSO induces structural repair besides as a dual mechanism together with its salvaging effect in acute myocardial injury.

CATEGORIES CORONARY: Cell Therapy and Angiogenesis

KEYWORDS Angiogenesis, Coronary interventions, Ischemia reperfusion

TCT-272

Everolimus-eluting stent versus bare-metal stent in diabetic patients with ST-segment elevation myocardial infarction. Insights from the EXAMINATION trial

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BACKGROUND The examination study was a multicenter prospective all-comers randomized controlled trial that compared Everolimus-eluting stent (EES) versus Bare-metal stent (BMS) in patients with STEMI. The aim of this study was to compare 1-year clinical outcomes after EES implantation compared with BMS in patients with diabetes (DM) included in the EXAMINATION trial.

METHODS Of the 1498 patients included, 258 patients were diabetic (EES=137, BMS= 121) and 1239 were not (EES=613, BMS=626). The primary endpoint was the patient-oriented combined endpoint (POCE) and secondary endpoints included the device oriented endpoint (DOCE) and other clinical parameters. The analysis of the clinical outcome at 1year was stratified by backward Cox-regression models including those variables with a $p<0.1$ or clinically relevant.

RESULTS Patients with DM presented worse baseline clinical characteristics than non diabetics. At 1 year, POCE was significantly higher in DM compared with non-DM (20.2%vs. 11.3%; p=0.001), whereas DOCE was similar between groups (9.7% vs. 6.3%; p=0-6). In the DM subgroup, rates of POCE and DOCE were similar between EES and BMS (19.0% vs. 21.5%; p=0.6 and 9.5% vs. 9.9%; p=0.9, respectively). However, in the EES group, the rate of target lesion revascularization was significantly lower compared with that of the BMS group (2.9% vs. 7.4%; HR: 0.45; 95%CI: 0.24-0.89; p=0.02). Rates of recurrent myocardial infarction and definitive or probable stent thrombosis were similar between groups (1.5% vs. 4.1%;p=0.2 and 2.2% vs. 1.7%; p=0.5, respectively).

CONCLUSIONS At 1 year, EES implantation in diabetics in the setting of STEMI did not reduce the rate of POCE as compared to BMS. However, the use of EES was able to reduce the need for repeat revascularization.

CATEGORIES CORONARY: Diabetes

KEYWORDS Acute myocardial infarction, Diabetes mellitus, Drug-eluting stent, everolimus

TCT-273

Influence Of Ticagrelor Versus Clopidogrel On Hemostatic Measurements, Vascular Function And Left Ventricular Remodeling In STEMI Patients

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BACKGROUND Experimental studies have supported that platelet reactivity is associated with hemostatic measurements, vascular function, and LV remodeling process. The aim of this study was to compare the influence of ticagrelor versus clopidogrel on these components in STEMI patients.

METHODS We prospectively enrolled STEMI patients undergoing primary PCI, whom were treated with clopidogrel (600 mg loading and 75 mg QD maintenance: n = 105) or ticagrelor (180 mg loading and 90 mg bid maintenance: n = 64) on top of aspirin. We serially measured platelet reactivity (using VerifyNow assay: pre-PCI, post-PCI, and 1-month follow-up), hs-CRP (pre-PCI, post-PCI, and 1-month follow-up), fibrinogen (pre-PCI and 1-month follow-up), vascular function (using brachial-ankle pulse wave velocity [baPWV]: post-PCI and 1-month follow-up) and LV remodeling index (using transthoracic echocardiography: post-PCI and 1-month follow-up).

RESULTS Baseline demographics and laboratory measurements were well balanced between the treatments. Compared with clopidogrel treatment, ticagrelor treatment showed the lower levels of platelet reactivity from pre-PCI phase (all p values $\leq$ 0.034) (Table). At 1-month follow-up, ticagrelor treatment sufficiently inhibited ADP-induced platelet reactivity (mostly less than 100 PRU). However, there were no differences in terms with hs-CRP level, baPWV and LV remodeling index between the treatments. Interestingly, ticagrelor versus clopidogrel reduced thrombin-mediated platelet reactivity (224 ± 33 vs. 240 ± 46 BASE; p = 0.030) and enhanced fibrinogen level (400 ± 104 vs. 360 ± 100 mg/dL; p = 0.027).

Variables	Clopidogrel	Ticagrelor	P value
ADP-PR			
$PRU_{pre\text{-}PCI}$	273 ± 64	240 ± 67	0.003
$PRU_{post\text{-}PCI}$	208 ± 78	55 ± 60	< 0.001
$PRU_{1\text{-}month}$	169 ± 64	24 ± 37	< 0.001
Thrombin-PR			
$BASE_{pre\text{-}PCI}$	247 ± 56	217 ± 41	0.001
$BASE_{post\text{-}PCI}$	276 ± 52	256 ± 61	0.034
$BASE_{1\text{-}month}$	240 ± 46	224 ± 33	0.030
Inflammation	(mg/L)	(mg/L)	
$Hs\text{-}CRP_{pre\text{-}PCI}$	7.9 ± 22.2	4.0 ± 9.8	0.193
$Hs\text{-}CRP_{post\text{-}PCI}$	40.3 ± 50.7	29.6 ± 47.0	0.251
$Hs\text{-}CRP_{1\text{-}month}$	4.9 ± 15.9	3.4 ± 5.9	0.505
Coagulation	(mg/dL)	(mg/dL)	
$Fibrinogen_{pre\text{-}PCI}$	334 ± 100	318 ± 77	0.281
$Fibrinogen_{1\text{-}month}$	360 ± 100	400 ± 104	0.027
Vascular function	(cm/s)	(cm/s)	
$baPWV_{post\text{-}PCI}$	1620 ± 438	1623 ± 498	0.970
$baPWV_{1\text{-}month}$	1479 ± 324	1516 ± 381	0.571
LV remodeling index (%)	-2.7 ± 27.3	-6.0 ± 23.8	0.609

CONCLUSIONS After the short-term treatment with ticagrelor versus clopidogrel, its strong inhibition of platelet activation is not associated with inflammation, vascular function and LV remodeling process in STEMI patients. Beneficial role of ticagrelor needs to be evaluated in randomized clinical trials after long-term treatment.

CATEGORIES CORONARY: Acute Myocardial Infarction

KEYWORDS Inflammation, left ventricular function, recovery, Platelet reactivity, Ticagrelor

TCT-274

Clinical Impacts Of Inhibition Of Renin-Angiotensin System In Patients With Acute Myocardial Infarction Who Underwent Successful Late Percutaneous Coronary Intervention

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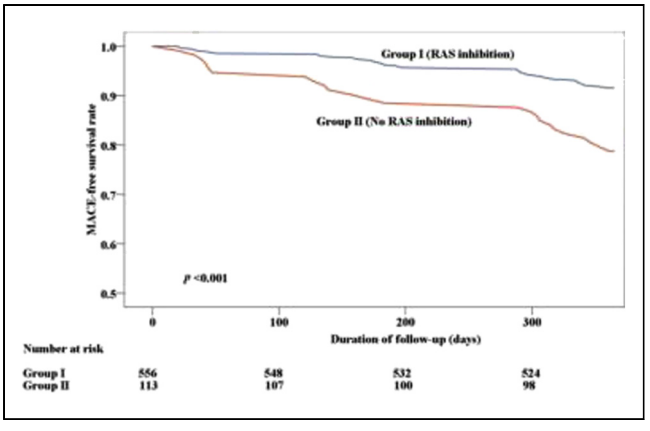
BACKGROUND Successful percutaneous coronary intervention (PCI) of the occluded infarct-related artery (IRA) in latecomers may improve long-term survival mainly by reducing left ventricular remodeling. It is not clear whether inhibition of renin-angiotensin system (RAS) brings additional better clinical outcomes in this specific population subset.

METHODS Between January 2008 and June 2013, 669 latecomer patients with acute myocardial infarction (MI) (66.2 ± 12.1 years old, 71.0% males) in Korea Acute Myocardial Infarction Registry (KAMIR) who underwent a successful PCI were enrolled. The study population underwent a successful PCI for a totally occluded IRA. They were divided into two groups according to whether they were prescribed RAS inhibitors at the time of discharge or not: group I (RAS inhibition, n=556), and group II (No RAS inhibition, n=113).

RESULTS During the one-year follow-up, major adverse cardiac events (MACE), which consist of cardiac death and MI, occurred in 71 patients (10.6%). There were significantly reduced incidences of MACE in the group I [hazard ratio (HR) = 0.34, 95% CI (confidence interval) 0.199 - 0.588, p=0.001]. In subgroup analyses, RAS inhibition was beneficial in patients with male gender, history of hypertension or diabetes mellitus, and even in patients with left ventricular ejection fraction (LVEF) ≥40%. In the baseline and follow-up echocardiographic data, benefit in changes of LVEF and left ventricular end-systolic volume was noted in the group I.

Comparison between baseline and follow-up echocardiographic data.

Variable	Group I (RAS inhibition, n=556)	Group II (no RAS inhibition, n=113)	p value
Baseline			
LVEF (%)	51.9 ± 10.6	51.3 ± 14.1	0.595
LVESV (ml)	57.5 ± 17.6	58.2 ± 21.8	0.678
LVEDV (ml)	118.9 ± 19.7	118.6 ± 18.9	0.889
Follow-up			
Time interval from baseline exam (days)	117 ± 58.3	121 ± 62.5	0.328
LVEF (%)	55.6 ± 11.1	50.7 ± 11.9	<0.001
LVESV (ml)	51.6 ± 17.8	59.3 ± 21.2	<0.001
LVEDV (ml)	115.1 ± 18.3	118.9 ± 19.2	0.048
% change from the baseline exam			
LVEF (%)	9.4 ± 24.9	2.6 ± 23.0	0.007
LVESV (ml)	-7.5 ± 28.3	7.2 ± 32.3	<0.001
LVEDV (ml)	-1.3 ± 19.3	2.4 ± 22.8	0.071



CONCLUSIONS In latecomers with acute MI, RAS inhibition improved long-term clinical outcomes after a successful PCI, even in patients with low risk who had relatively preserved LVEF.

CATEGORIES CORONARY: Acute Myocardial Infarction

KEYWORDS Angiotensin converting enzyme inhibitor, Angiotensin Receptor Blocker, Myocardial infarction

TCT-275

Abstract Withdrawn

TCT-276

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