major adverse cardiac events (MACE) between NSTE MI patients with complete versus target-vessel revascularization.

**METHODS** We analyzed retrospectively 114 patients, mean age 67 ± 12 years, 69% male, hospitalized with NSTE MI between June and December 2012 and followed-up 12 months. Inclusion criteria were angiographic data for significant atherosclerotic involvement of more than one coronary artery and proceeding to percutaneous coronary intervention (PCI) within 24 hours. Complete target-vessel revascularization, the rest 43 (38%) - complete revascularization.

**RESULTS** Demographic and clinical characteristics did not differ significantly between groups except for smoking (more prevalent in target-vessel revascularization group). Procedure success was 91% in target-vessel revascularization group and 88% in patients with complete revascularization. Rate of early in-hospital complications was not significantly different between the groups: mortality - 2 (2.7%) versus 1 (2.3%), periprocedural myocardial infarction - (11.7%) versus (12.3%), in target-vessel and full revascularization groups, respectively.

During one-year follow-up combined incidence of MACE (mortality, myocardial infarction, revascularization) was significantly reduced after full revascularization (4 patients, 9.3%) compared to target-vessel intervention (12 patients, 9%), P <0.01. The difference in MACE was driven mainly by the significant reduction in the rate of repeat revascularization and mortality.

**CONCLUSION** NSTE MI patients have improved prognosis with complete versus target vessel revascularization during one-year follow-up, without increase in the rate of in-hospital complications.

**TCTAP A-015**

**Bleeding Events of STEMI Patients After PCI Is Associated with a Genetic Risk Score Based on High-Risk Genetic Polymorphisms**

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**BACKGROUND** Gene polymorphisms of ABCB1, CYP2C19, PON1 and P2Y12 may influence pharmacodynamics and clinical events of clopidogrel treatment. We assessed the hypothesis that a genetic risk score based on identified high-risk single nucleotide polymorphisms (SNPs) would be associated with bleedings in clopidogrel-treated Chinese STEMI patients after percutaneous coronary intervention (PCI). A total of 510 consecutive patients with STEMI who received an uneventful PCI and were exposed to clopidogrel treatment for 12 months, were enrolled in the single-center registry. There were 7 high-risk SNPs selected from ABCB1 (rs1045642, rs2235047), CYP2C19 (*1/*2), PON1 (rs662, rs854560) and P2Y12 (rs6785930, rs6809699) genes, which were detected by the ligase detection reaction. The primary clinical safety endpoint was the incidence of major bleeding events. Major bleeding was quantified according to bleeding academic research consortium definition (BARC) criteria, including type 3 and 5 in the analysis. The follow-up period was 12months.

**RESULTS** Overall, 46 BARC 3 bleeding events (9.0%) occurred, which included 11 (2.2%) cases of BARC 3C bleedings and 35 (6.8%) cases of BARC 3a bleedings. After adjustment for traditional clinical risk factors, multivariate logistic regression analysis identified SNPs significantly associated with bleedings were ABCB1 (rs1045642, rs2235047) and P2Y12 (rs6785930, rs6809699). A genetic risk score was constructed by summing the number of risk alleles. As a continuous variable, the risk score resulted in an OR of 1.226 per unit increase in score (95%CI=1.098-1.601, p=0.003). The addition of this genetic risk score significantly increased AUC from 79.3% to 82.4% (p=0.03), and significantly improved the predictive ability on bleeding risk by 20% using the NRI approach (p=0.01).

**CONCLUSION** This genetic score was significantly associated with bleedings after PCI in our study population.

**TCTAP A-016**

**Sequential Therapy of Higher Doses of Atorvastatin Could Decrease Soluble CD40L and Increase Coronary Blood Perfusion with Improvement of Endothelial and Ventricular Function in STEMI Patients During Primary Percutaneous Coronary Intervention**

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**BACKGROUND** Studies indicate that soluble CD40 ligand (sCD40L) is associated with disease progression and severity in acute coronary syndrome (ACS), while it may provide a mechanistic link between inflammation and myocardial reperfusion as well as cardiac function. However, it is still controversial whether sequential therapy of higher doses of atorvastatin could provide more benefits in regulating sCD40L, coronary blood perfusion and ventricular function compared with a conventional dose in STEMI patients undergoing primary PCI.

**METHODS** After screening, 136 STEMI patients met the inclusion criteria and were included for analysis. All of them were divided into three groups by using an electronic spreadsheet indicating the group assignment by random numbers: Group A (n=48) (received 80mg of Atorvastatin before primary PCI, post-PCI loading dose Atorvastatin 40mg for 1 month, and Atorvastatin 20mg for 5 months); Group B (n=48) (received no pre-PCI loading dose of atorvastatin but did receive Atorvastatin 40mg for 1 month and then Atorvastatin 20mg for 5 months); Group C (n=40) (received only post-PCI Atorvastatin for 6months). TIMI flow grade and Coronation TIMI End-Frame Count (CTFC) after PCI would be recorded and compared among three groups. In addition, the serum sCD40L and endothelial nitric oxide synthase (eNOS) would be measured at admission and 1-day, 7-day, 1-month, 6-month after PCI. Improvement of cardiac function would also be evaluated during the follow-up.

**RESULTS** Patients among the three groups were well matched in demographic and clinical characteristics (P>0.05). Patients in Group A exhibited much better myocardial reperfusion indicated by CTFC compared with Group B or Group C (no differences were observed in TIMI flow Grade 3 among three groups after PCI (P>0.05)). The levels of sCD40L in Group A were significantly lower than those in Group B or Group C on 1-day and 7-day (P<0.05), but not in later sampling points (P>0.05). Patients in Group A also gained higher levels of eNOS and showed improvement in heart performance, with significant increase in their left ventricular ejection fraction (LVEF) (P<0.05). Patients in Group B had relatively higher levels of eNOS as well as significant improvement in LVEF compared with Group C (P<0.05), although no statistical differences were observed in sCD40L comparison (P>0.05). No severe adverse reactions were observed during studying period.

**CONCLUSION** For STEMI patients, the sequential therapy of atorvastatin during primary PCI could significantly lower serum sCD40L, shorten CTFC and increase eNOS and LVEF. The sequential therapy of atorvastatin treatment may reduce inflammatory response, improve myocardial reperfusion and mend cardiac function with acute coronary syndromes undergoing primary PCI. (ClinicalTrials.gov Identifier: NCT 01334671)

**TCTAP A-017**

**Favorable Impact of Early Primary Percutaneous Coronary Intervention for the Oldest Old Patients with Acute Myocardial Infarction**

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**BACKGROUND** Recent studies of elderly patients demonstrate high mortality from acute myocardial infarction (AMI) and increased risk with advancing age. Although many oldest old AMI patients (>85 years) have been treated by primary percutaneous coronary intervention (pPCI) for these patients is unknown.

**METHODS** We evaluated consecutive 564 AMI patients (mean age 68.5 ± 12.9, male 77%) from Mie ACS Registry in Japan from January to December 2013. The pPCI was performed 86% patients. Patients were divided into two groups according to the age: oldest old (age ≥ 85 years old: n=62) and non-oldest old patients (<85 years old: n=502). Primary end point was defined as 30 days in-hospital mortality.

**RESULTS** Percentage of chest pain at presentation of oldest old patients was tend to be lower than non-oldest patients (77 vs. 85%, p=0.07). However, there was no difference for prevalence of prior PCI between two groups, 30 days in-hospital mortality of oldest patients was significantly higher than non-oldest patients (19.4 vs. 7%, p<0.01). Even in the patients with pPCI, oldest patients showed poor 30 days in-hospital mortality compared to the non-oldest patients (11.5 vs. 5.1%, p=0.06). Only when analyzed patients with early pPCI (less than 12 hours after onset), oldest patients showed similar favorable prognosis to the non-oldest patients (Figure1A). However, oldest patients with delayed pPCI(more than 12 hours) showed poor prognosis compared to the non-oldest patients (Figure 1B). In
multivariate analysis, Killip classification and non-performed early pPCI were independent predictor for 30-days in hospital mortality (HR 2.7, 95%CI 1.6-4.5, p<0.01, and HR 4.5, 95%CI 2-16.8, p=0.03, respectively).

Kaplan Meier Survival Curves of 30 days in-hospital mortality

CONCLUSION The oldest old patients showed various chief complaints, which might lead to the delayed pPCI. However, we have to provide the early pPCI for better prognosis, especially for the oldest old AMI patients.

TCTAP A-018
The Successful Experience of Establishment of Ambulance Pre-Hospital Electrocardiogram System in Kaohsiung City, TAIWAN

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BACKGROUND Early reperfusion in the setting of an ST-elevation myocardial infarction is utmost importance. However, to provide optimal care to patients with ST-segment elevated myocardial infarction (STEMI) is challenging. If a patient suffers from chest pain and calls the emergency number, initiation of a cascade of actions leads to a diagnosis, start of treatment and reperfusion of the infarcted myocardium. Previous studies have shown that reporting or transmitting prehospital ECG to the emergency department is an important part of treatment for patients with STEMI. The main benefit of prehospital ECG is its potential to reduce the overall treatment time to administration of reperfusion therapy. Furthermore, prehospital ECG enhances early arrival and triage to the emergency department, which is associated with increased use of reperfusion interventions and shortened time to treatment. However, it remained a challenging issue to set up prehospital ECG in Taiwan because of involvement of complicated multidisciplinary team work. Therefore, we reported first successful experience of establishment of pre-hospital ECG in Kaohsiung city.

METHODS A multidisciplinary team among Kaohsiung Veterans General hospital, fire bureau and department of health, Kaohsiung city government was organized since Sep, 2011. The key interventions include to establish prehospital automatic interpretation ECG system with immediate ECG transmission over mobile networks, to design a ECG exam accessory device, to set up the pre-hospital ECG system of Kaohsiung city is cooperation of hospital, fire bureau and department of health of government. Furthermore, comprehensive EMT education program and development of an ECG exam accessory device were also critical to set up the pre-hospital ECG system.

RESULTS We developed an ECG exam accessory device, which could shorten ECG exam from 252 seconds to 30 seconds. The number of monthly chest pain patients received ambulance ECG exam increased from zero patient in pre-interventional group, to 0.4 patients in interventional group and to 14.2 patients in post-interventional group (p<0.001). The ECG implementation rate increased from 0% in pre-interventional group, to 0.6% in interventional group to 33.6% in post-interventional group (p<0.001). Total 14 patients with STEMI was detected in 175 chest pain patients received ambulance ECG exam. In these STEMI patients, average door to balloon time was 53.5 minutes, average ischemia to balloon time was 111 minutes and in-hospital mortality was 0%.

CONCLUSION The key factor to establish pre-hospital ECG system in Kaohsiung city is cooperation of hospital, fire bureau and department of health of government. Furthermore, comprehensive EMT education program and development of an ECG exam accessory device were also critical to set up the pre-hospital ECG system.

TCTAP A-019
Clinical Features and Intermediate-Term Outcomes of Excimer Laser Coronary Angioplasty

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BACKGROUND Excimer laser coronary angioplasty (ELCA) has been recently reimbursed from 2012 in Japan for percutaneous coronary intervention (PCI). We evaluated the intermediate-term clinical results of consecutive cases who underwent ELCA in our hospital.

METHODS Between May 2012 and September 2014, consecutive 144 patients presented with acute coronary syndrome (ACS) and stable coronary disease. ELCA was indicated by the operator after consideration of the angiographic and intravascular ultrasound (IVUS) or optical coherence tomography (OCT) findings.

RESULTS Of the 144 patients studied, Average age was 68.3 years old and 82.3% was male. Lesion characteristics contained 63 ST-elevated myocardial infarction (STEMI) (44%), 14 non-STEMI (9%), 19 unstable Angina pectoris (uAP) (13%) and 48 stable angina pectoris (SAP) (34%). Procedural success (device pass the lesion) was 97.8%. Treatable coronary perforation occurred in 3 cases (2 cases were patients with STEMI). 30 days mortality of STEMI patients was 5%.

CONCLUSION ELCA is feasible and safe device for the treatment of patients with both patients with SAP and acute coronary syndrome. Further investigations will be required with larger number of patients to establish the effectiveness of ELCA.

TCTAP A-020
Effect of High Loading Dose of Atorvastatin in ST Elevation Myocardial Infarction Patients Undergoing Primary Percutaneous Coronary Intervention on Microvascular Perfusion Measured by Index of Microvascular Resistance

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BACKGROUND Statin (3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitors), given before percutaneous coronary intervention (PCI) was proven to reduce Major Cardiovascular Events (MACE) in patient with stable angina as well as acute coronary syndromes through it’s pleiotropic effect. Nevertheless, the debate regarding statin administration before primary PCI (PPCI) in STEMI patients is still on the rise. The aim of this study is to establish therapeutic effect of high dose atorvastatin (80 mg) and placebo before primary PCI on microvascular perfusion in STEMI patient using index of microcirculatory resistance (IMR). IMR is specific and quantitative assessment of coronary microvascular dysfunction, reliable on-site predictors of short-term myocardial viability and left ventricle functional recovery of patients undergoing primary PCI for STEMI.

METHODS This study is a double blind randomized controlled trial. A high loading dose of atorvastatin (80 mg) or placebo was administered before PPCI. Samples were taken from the population of STEMI patients which underwent PPCI and meet inclusion and exclusion criteria. The primary end point of this study is IMR. After successful primary percutaneous coronary intervention, IMR was measured using a pressure-temperature sensor-tipped coronary guidewire.