Role of Hypercholesterolemia and Inflammation in No/Slow Reflow During Elective PCI in ACS patients

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Background: No/Slow Reflow is a nightmare in cath labs because of its serious manifestations from severe chest pain to death. However, its exact etiopathogenesis is still a mystery. We intend to find its possible underlying mechanism(s).

Methods: Among the High Risk ACS patients for No/Slow Reflow (Hypertensive, Diabetes, Chronic Total Occlusion, Stent Restenosis, SVG Stenosis, Artefacty Dissected, Left Main and LAD Lesion, Multivessel and Diffuse Lesion) who had undergone Elective PCI from October 2012 to October 2013, 23 patients were found to have No/Slow Reflow and allocated as No/Slow Reflow Group and another 23 high risk patients were also randomized and allocated as Control Group. Platelet and Plaque Factors, Inflammatory Factors, Uric Acid, Cholesterol Factors, Symptom Onset to Balloon Interval (Days) and Syntax Score for each patient were collected and compared between two groups.

Results: Uric Acid (p = 0.031, r = 0.318), Total Cholesterol (p = 0.010, r = 0.374) and LDL (p = 0.014, r = 0.360) were the only correlation factors with No/Slow Reflow group. However, Neutrophil to Lymphocyte Ratio (p = 0.017, CI=2.135-1969.758) and Total Cholesterol (p=0.036, CI=1.483-7558.262) were left as the only independent factors of No/Slow Reflow after multivariable logistic regression. After ROC curve analysis, Total Cholesterol got the highest Area Under Curve (AUC=0.703) with the best cut off point of 3.77 mmol/L (Sensitivity = 65%, Specificity = 65%) followed by Neutrophil to Lymphocyte Ratio.

Conclusion: Total Cholesterol and Neutrophil to Lymphocyte Ratio (New Inflammatory Markers) are independent factors in No/Slow Reflow Patients. Therefore, Hypercholesterolemia and Inflammation may be possible mechanisms of No/Slow Reflow during Elective PCI.

TCTAP A-135
Coronary-pulmonary Artery Fistula Complicated with Coronary Artery Aneurysm Treated with Transcatheter Coil Embolization
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Background: Recently, coronary-pulmonary artery fistulas are frequent diseases among congenital coronary deformity, and detected in 0.1 to 0.2% of patients who underwent coronary angiography (CAG). However, it is rare to be complicated with a coronary artery aneurysm in coronary-pulmonary artery fistula. We report three cases of coronary-pulmonary artery fistula complicated with coronary artery aneurysm treated with transcatheter coil embolization.

Methods: A representative case was 76-year-old woman who had been referred to our center with chest pain on exertion since 5 years before. Electrocardiography showed ST-T depression on inferior myocardium. CAG revealed 50% stenosis in mid right coronary artery (RCA), and high-flow coronary artery from the proximal RCA to main pulmonary artery with coronary artery aneurysm.

Results: We successfully treated coronary-pulmonary artery fistula and coronary artery aneurysm by transcatheter coil embolization. The patient has been free of symptoms during 9 months follow up.

Conclusion: Surgical repair for coronary-pulmonary artery fistula complicated with coronary artery aneurysm on chest pain in Japan, but it is suggested that transcatheter coil embolization is another option as effective and safe treatment.

TCTAP A-136
Primary Versus Tenecteplase-facilitated Percutaneous Coronary Intervention with Routine Thrombus Aspiration and Closing Device in Patients with STEMI
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Background: In current guidelines for patients with ST elevated Myocardial Infarction (STEMI), primary percutaneous coronary intervention (PCI) suggests as the preferred reperfusion strategy. In previous study, facilitated PCI had similar procedural TIMI result as compared with primary PCI group, but stent thrombosis increased in facilitated PCI group due to prothrombotic condition after thrombolytic therapy, and intracranial hemorrhage (ICH) increased in facilitated PCI group. However, performing dual antiplatelet therapy, subcutaneous enoxaparin injection, routine thrombus aspiration, PCI with new generation drug eluting stent (DES), and closing device in new era are expected to change the results. The aim of this study is to compare the clinical outcomes between primary PCI and tenecteplase-facilitated PCI in new era.

Methods: A total of 113 consecutive STEMI patients with PCI were analyzed between January 2006 and December 2012. The patients were divided into two groups such as Primary PCI and Facilitated PCI. (Primary PCI group: n=86, Facilitated PCI group: n=69). The patients had undergone PCI according to visiting time at emergency room (ER). The patients who visited at ER from 6:00am to 9:00am had undergone Primary PCI and the patients who visited at ER from 0:00am to 6:00am had undergone Tenecteplase-Facilitated PCI. Primary PCI had been performed within 90 minutes, and Tenecteplase-Facilitated PCI had been performed within 6 hours. All patients had received aspirin 300mg loading dose, clopidogrel 600mg loading dose, and enoxaparin subcutaneous injection, and all patients had been treated with closing device. Enoxaparin was performed in patients who undergo post-ballooning dilation and decrease post Thrombolysis In Myocardial Infarction (TIMI) flow to 0-2 flow. We compared 12 months clinical outcomes including mortality, reinfarction, target lesion revascularization (TLR), and major adverse cardiac event (MACE) between two groups.

Results: Baseline clinical characteristics were similar between two groups. Angiographic characteristics showed that Pre TIMI 0-2 flow lesion (89% vs 68.4%, p<0.001), Visible thrombus (77.7% vs 48.7%, p<0.001), and the use of GP IIb/IIIa inhibitor (34.4% vs 15.4%, p=0.022) were higher in Primary PCI group. Thrombosis aspiration was similar between two groups (37.1% vs 30.8%, p=0.472). However, after PCI, TIMI 3 flow was similar between two groups (85.6% vs 91.2%, p=0.949), and there were no difference of 12 months clinical outcomes including mortality (12.9% vs 7.7%, p=0.432), TLR (7.0% VS 5.1%, p=0.750), and MACE (14.0% vs 17.9%, p=0.610). In trend, although the cumulative incidence of MACE was similar between two groups (Log rank=0.521).

Conclusion: In the present study, Primary PCI group had more visible thrombus, and frequently used GP IIb/IIIa inhibitor as compared with Tenecteplase-Facilitated PCI. However, after PCI, post TIMI 3 flow and cumulative incidence of MACE up to 12 months were similar between two groups. Therefore, in new era, Tenecteplase-Facilitated PCI can be considered as alternative to Primary PCI.

TCTAP A-137
Very Long-term Clinical Outcomes After Primary Stenting Using Sirolimus and Paclitaxel-eluting Stents for Patients with STEMI
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Background: We sought to provide the retrospective comparison of very long-term clinical outcomes after primary stenting using sirolimus (SES, Cypher Bx Velocity) and paclitaxel (PES, TAXUS Express)-eluting stents for patients with STEMI.

Methods: The present study was a non-randomized, retrospective, and single center study, recruiting 596 first STEMI patients after successful either SES or PES placement during from August 2004 to February 2007. Primary endpoint was the incidence of severe cardiac events comprising of cardiac death, nonfatal recurrent MI, and definite stent thrombosis.

Results: Except the clinical observation interval in the SES and PES groups (2173 ± 786 vs. 1828 ± 416 days, p < 0.001), baseline 25 variables were not significantly different. The incidence of severe cardiac events including 7 cases of very late definite stent thrombosis (0.8%) was significantly lower in the SES group (2.7%) than that in the PES group (6.5%, p < 0.01). Cumulative primary endpoint-free ratio in the SES group was not significantly, but in trend, different from that in the PES group (p = 0.062).

Conclusion: Thus, the present study necessitated to evaluate the very long clinical observation after DES placement for primary stenting for STEMI patients.

TCTAP A-138
Mode of Presentation of Patients with ST-segment Elevation Myocardial Infarction in Singapore and Its Impact on Door-to-balloon Time and Clinical Outcome
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Background: In the management of patients with ST-segment elevation myocardial infarction (STEMI), the timeliness of reperfusion via primary percutaneous coronary intervention (PPCI) is important in determining the morbidity and mortality. The timeliness of PPCI is estimated by the door-to-balloon (D2B) time which has become a key performance measure. Current guidelines recommend a D2B of ≤ 90 minutes.

Methods: From January 2009 to December 2011, 957 patients (80 ± 18 years of age, mean age of 58 ± 12 years) presented to our hospital for STEMI and underwent PPCI. We evaluated the relationship between the 2 different modes of presentation with median door-to-balloon (D2B) time and in-hospital mortality. Data were collected retrospectively from medical records and the patients were reviewed at our hospital.

Results: The majority of STEMI patients (64%) utilized the EMS with the remaining 36% being SP. The percentage of patients achieving D2B < 90 minutes was 84%. The median D2B time was significantly shorter in patients presenting via EMS (57 minutes vs 66 minutes in the SP group, p < 0.0001). Despite shorter D2B time, the EMS group had a significantly higher in-hospital mortality rate than the SP group (6.4% vs 2.9%, p<0.02).

Patients in the EMS group had a higher incidence of hypertension and hyperlipidemia, which were significantly higher at presentation vs. priorly. Moreover, patients in the EMS group had a significantly higher in-hospital mortality rate than the SP group (6.4% vs 2.9%, p<0.02).

Conclusion: Although the majority of patients utilised EMS and had a significantly shorter D2B time, they paradoxically had a higher rate of in-hospital mortality. Our post hoc analysis suggested that this phenomenon might not be due to treatment delay but rather the risk profile of patients who use EMS. Further reduction does not impact mortality in STEMI. Patients with sicker features were more likely to use EMS in our study which was associated with increased mortality.