

with a higher risk of bleeding have limited its widespread use. As the rates of early stent thrombosis are higher especially in the early stages of STEMI, the use of a more potent DAPT regimen in the initial period could potentially confer the most benefit. We therefore sought to evaluate the safety and efficacy of a hybrid DAPT regimen (involving a switch of prasugrel to clopidogrel at 1 month post MI) in STEMI patients and report on the clinical outcomes.

Methods: From January to August 2012, 141 STEMI patients (94% male, mean age 54 ± 9.2 years) were preloaded with 60 mg of prasugrel and 300 mg of aspirin in the emergency room of our institution prior to PPCI. Patients aged > 75 years, body weight < 60 Kg and those with previous history of stroke were excluded.

Upon hospital discharge, patients received maintenance doses of 10 mg of prasugrel and 100 mg of aspirin for the first 30 days. At 30 days post MI, prasugrel was stopped and patients were loaded with 300 mg of clopidogrel followed by 75 mg as maintenance dose (for the remaining 11 months in conjunction with aspirin). The primary efficacy end point was a composite of death from cardiovascular causes, nonfatal MI, or nonfatal stroke at 1 year follow-up. The key safety end point was Thrombolysis in Myocardial Infarction (TIMI) major bleeding at 1 year follow-up.

Results: PPCI was performed predominantly via the radial approach (86%) with Clexane used as procedural anti-coagulant in 60% of patients (40% received heparin). Glycoprotein IIb/IIIa inhibitors were administered in 82% of patients with the majority (64%) receiving drug eluting stent implantation during PPCI.

The primary end point occurred in 6 patients (4.3%) with 4 events (2.8%) occurring within the first 30 days of MI. Death from cardiovascular causes occurred in 3 patients (2.1%). Non-fatal MI occurred in 2 patients (1.4%) with 1 patient (0.7%) developing a non-fatal stroke. Stent thrombosis occurred in 3 patients (2.1%) patients with 1 case of probable stent thrombosis (0.7%) occurring within 30 days of MI.

Bleeding events were observed in 10 patients (7%) with TIMI major bleeding episode occurring in 3 patients (2.1%). There was 1 bleeding episode occurring in the setting of coronary artery bypass surgery.

Conclusion: Our preliminary experience showed that a hybrid DAPT regimen in a selected group of STEMI patients is feasible, efficacious and safe. The long term clinical outcomes were good with a low incidence of ischaemic and bleeding events.

TCTAP A-031

Platelet Function Test and Bleeding Risk in Patients with Coronary Artery Disease: A Case-control Study

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Background: Management of coronary heart disease remains a challenge even with modern advances. New anti-platelet agents which reduce thromboembolic events in patients with coronary heart disease were introduced. However, there are concerns about an increased in bleeding risk for patients taking these new anti-platelet agents. Platelet function test, such as VerifyNow, claimed to be able to predict bleeding risk. However, the evidence was limited, especially among the Asian population. This study aimed to evaluate the use of VerifyNow to assess bleeding risk. Subjects with low residual platelet reactivity, i.e. low PRU value, were hypothesized to have an increased bleeding risk.

Methods: This was a case control study performed in the Princess Margaret Hospital of Hong Kong. A total of 120 subjects who were taking a P2Y12 inhibitor and had a VerifyNow test were recruited. The cases were defined as subjects with a PRU value of less than or equal to 95, a threshold for increased bleeding risk as recommended by Western studies. The controls were age matched to the cases. The primary outcome was the increase in bleeding risk associated with a low PRU value at 30 days. The secondary outcome was the increase in bleeding risk associated with a low PRU value at 1 year. The use of the percentage of platelet inhibition was also evaluated as a secondary outcome. Multivariable logistic regression was used to obtain the odds ratio of the low PRU group.

Results: Bleeding events occurred more frequently in the low PRU group. At 30 days, 31.7% of subjects among the case had a bleeding event while 43.3% of the cases had a bleeding event at 1 year. The majority of these bleeding events were minor bleeding, such as easy bruising. After adjusting for confounders, there was no statistically significant increase in bleeding risk among those in the low PRU group at 30 days or 1 year. Subjects with a high percentage of platelet inhibition ($>50\%$) was also not associated with a statistically significant increase in bleeding risk.

Conclusion: A low PRU value was not associated with an increased bleeding risk at 30 days. Thus the VerifyNow test was not shown to be useful in assessing the bleeding risk of patients in an Asian population, contrary to the findings from Western literature. A possible explanation was that the VerifyNow threshold for predicting bleeding might be higher among the Asian population. The definition for low residual platelet reactivity might be different in our locality. A larger sample size might also be needed. Further studies are needed to evaluate whether a different cut off is more optimal for the Asian population.

TCTAP A-032

Comparison of Platelet Reactivity and Clinical Outcomes in Patients Treated with Clopidogrel and Coronary Intervention

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Background: Platelets are associated with vascular occlusive event. High on-clopidogrel platelet reactivity (HPR) is associated with recurrent thrombotic events after percutaneous coronary intervention (PCI). We evaluated platelet reactivity measured by the VerifyNow P2Y12 assay and clinical outcomes in patients receiving clopidogrel and PCI of real world practice.

Methods: We recruited A total of 878 consecutive clopidogrel-treated patients undergoing emergent or elective PCI. The main outcome measures were cardiovascular (CV) death, definite/probable stent thrombosis (ST), nonfatal myocardial infarction (MI), coronary revascularization and a composite end point of ischemic events. We assessed Platelet reactivity 12 hours later by measuring P2Y12 reactivity unit (PRU) with VerifyNow P2Y12 assay (Accumetrics, San Diego, California). High platelet reactivity (HPR) was defined as PRU value ≥ 240 or 280.

Results: In total, 877 consecutive patients were enrolled. Patients with HPR were 454 (Male, 284). In all patients, coronary stent was implanted. All patients received clopidogrel pretreatment (300mg loading dose), received a maintenance dose of 75 mg daily. The composite end points of the study at follow-up of 12 months were CV death, nonfatal MI, and coronary revascularization. At a 12-month follow-up, we found 85 ischemic events (26 CV deaths [3.4%], 11 nonfatal MIs [1.4%]) and 56 target-vessel revascularizations (7.1%). The composite event rate of patients with HPR (PRU > 240) was significantly higher (7.5% vs 4.3% ($p = 0.047$)) than the patient with normal value. In survival analysis, there was no significant difference between patient with HPR (PRU > 240) and normal reactivity. But between patient with HPR (PRU > 280) and normal reactivity, the survival rate free from the primary end point was significantly lower in patients with HPR ($p = 0.014$, Generalized Wilcoxon test).

Conclusion: High on-clopidogrel platelet reactivity tested by VerifyNow predict coronary adverse event in patients after PCI. In Korean, we seem to have to raise the optimal cutoff value of PRU to predict future coronary event.

TCTAP A-033

Reappraisal of Pharmacodynamic Effect of Adjunctive Cilostazol and High-dose Clopidogrel in East Asian ACS Patients

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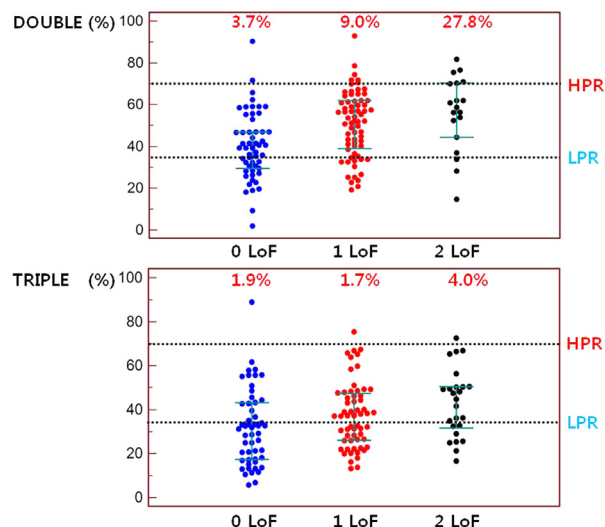
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Background: Compared with Westerners, East Asians have shown different therapeutic level of platelet reactivity (PR) regarding post-PCI ischemic and bleeding events. We also reported different therapeutic level for East Asians ($35\% < 20 \mu\text{M ADP-PR} < 70\%$). We reappraised the pharmacodynamic effect of adjunctive cilostazol and high-dose clopidogrel in East Asians based on this criteria.

Methods: PCI-treated ACS patients were assigned to either clopidogrel 150 mg/d (DOUBLE; $n=139$) or cilostazol 100 mg bid + clopidogrel 75 mg/d (TRIPLE; $n=136$) on top of aspirin. PR was measured at least 30-day follow-up with light transmittance aggregometry. Primary endpoint was the prevalence of HPR at follow-up.

Results: DOUBLE and TRIPLE together showed low prevalences of HPR (9.4% and 2.2%, respectively). Although the level of PR in TRIPLE increased according to the number of CYP2C19 loss-of-function (LoF) allele ($p=0.015$), HPR risk was almost overcome irrespective of CYP2C19 phenotype ($p=0.633$). The level of PR and HPR risk in DOUBLE increased proportionally depending on CYP2C19 phenotype ($p<0.001$ and $p=0.006$, respectively). In multivariate analysis, carriage of 2 CYP2C19 LoF alleles only increased HPR risk by 8.5-fold in DOUBLE.

Conclusion: Our results support clinical usefulness of TRIPLE in East Asians based on pharmacodynamic data. Clinical efficacy and safety of more potent P2Y12 inhibitor, prasugrel and ticagrelor, must be reevaluated separately in this unique race.



TCTAP A-034

Observational Studies of Bleeding and Thrombotic Events in Acute Coronary Syndrome Patients Between Different Metabolizer of Clopidogrel

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Background: Compared with CYP2C19*1 carriers CYP2C19*2,*3 carriers have a higher risk of stent thrombosis in clopidogrel-treated patients. Therefore