DETERMINATION OF OPTIMAL CUT-OFF VALUE IN ON-CLOPIDOGREL PLATELET AGGREGATION BY VERIFYNOW P2Y12 SYSTEM BASED ON FUNCTIONAL CYP2C19 GENE VARIANTS

ACC Poster Contributions
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Background: Carriers of a reduced-function CYP2C19 allele are shown to have diminished platelet inhibition and higher rate of clinical risk. We hypothesized that optimal cut-off value showing effective inhibition of on-clopidogrel platelet aggregation might be determined by calculating the cut-off value of on-clopidogrel platelet aggregation in carriers of CYP2C19 reduced-function allele.

Methods and Results: We enrolled 177 consecutive coronary artery disease (CAD) patients who received dual-antiplatelet therapy with both aspirin and clopidogrel. We examined CYP2C19 genotype and residual platelet aggregation by using VerifyNow P2Y12 system. Frequency of CYP2C19 reduced-function allele was 65% in carriers and 35% in noncarriers. Platelet inhibition measured by P2Y12 reaction units (PRU) and % inhibition calculated as (1-PRU/Base) x100, was diminished in carriers compared with noncarriers (293.3±83.2 vs 216.6±75.6, p<0.0001, 18.1±18.9 vs 36.6±21.8, p<0.0001, respectively). By multiple logistic regression analysis, PRU and % inhibition were significantly associated with carrier [odds ratio (OR) 4.85; 95% confidence interval (CI): 1.41 to 14.95; p=0.0060, OR 4.22; 95% CI: 1.41 to 12.62; p=0.00996, respectively]. In receiver-operating characteristic analysis, PRU and % inhibition were significant predictors of carrier [area under the curve (AUC) 0.744; p<0.0001, AUC 0.721; p=0.00996, respectively]. Cut-off PRU and % inhibition levels were 259.5 and 25.4%, respectively.

Conclusions: These results suggested that Cut-off PRU and % inhibition levels might be useful indicators as optimal antiplatelet therapy with clopidogrel in stable CAD patients.