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Acute Coronary Syndromes

CARRIAGE OF REDUCED-FUNCTION CYP2C19 ALLELE IS AN INDEPENDENT PREDICTOR OF PERIPROCEDUAL MYOCARDIAL INFARCTION IN PATIENTS WITH NON ST-SEGMENT ELEVATION ACUTE CORONARY SYNDROMES

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Authors: *Kozo Okada, Kengo Tsukahara, Tsutomu Endo, Kiyoshi Hibi, Kazuaki Uchino, Satoshi Umemura, Kazuo Kimura, Yokohama City University Medical Hospital, Yokohama, AL, Japan*

Background: Carriage of even 1 reduced-function CYP2C19 allele is associated with an increased risk of major adverse cardiovascular events. However, the impact of carriage of reduced-function CYP2C19 genotype on periprocedural myocardial infarction (P-MI) remains unclear.

Methods: We measured platelet reactivity in 80 patients with non ST-segment elevation acute coronary syndromes (NSTEACS) undergoing percutaneous coronary intervention (PCI). All patients received aspirin 100mg/day and 300mg loading of clopidogrel 6-24 hours prior to PCI, followed by 75mg/day. Platelet reactivity was measured on admission (baseline) and before-PCI by using the VerifyNow P2Y12 assay which results were expressed in P2Y12 reaction units (PRU). HPR was defined as PRU level before-PCI ≥235. Serum troponin I values were measured on admission, before-PCI, at 12 hours and 24 hours after PCI to estimate P-MI according to universal definition including significantly re-increase in Troponin I. Patients were classified as careers (patients with one or two reduced-function CYP2C19 alleles, n=59) and non-careers (patients without any reduced-function alleles, n=19).

Results: Baseline patient's characteristics did not differ between careers and non careers. The percent reduction in PRU from baseline to before-PCI were lower (-3.3±25.2% vs. -23.4±26.1%, P<0.01), consequently PRU levels before-PCI (254.6±106.2 vs 297.1±73.8, P<0.05) and the frequency of patients with HPR was higher (84.1% vs. 54.2%, P<0.05) in careers than non-careers. The incidence of P-MI was 48% and was higher in careers than non-careers (58.3% vs 28.6%, P<0.05). P-MI was associated with non-administration of statin on admission, PRU levels before PCI and careers in univariate analysis (respectively, P<0.05). In multivariate analysis, careers was an independent predictor of P-MI.

Conclusions: In Japanese NSTEACS patients treated with clopidogrel, carriage of even 1 reduced-function CYP2C19 allele is an independent predictor of P-MI, which may be contributed to inadequate platelet inhibition in acute phase.