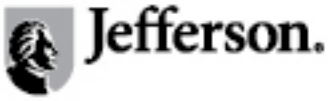

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Association of CYP2C19*17 Allele and Choice of P2Y12 Inhibitor on Cardiovascular Outcomes Following Percutaneous Coronary Intervention

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Introduction: The CYP2C19*17 allele variant is a gain-of-function polymorphism which increases levels of the active metabolite of clopidogrel.

Objective: *17 is associated with increased bleeding risk during clopidogrel therapy, but it is unclear whether alternative P2Y12 inhibitors, prasugrel and ticagrelor, produce better clinical outcomes in patients undergoing percutaneous coronary intervention (PCI).

Methods: A single-center observational study was conducted in 928 PCI patients who received *CYP2C19* testing and dual anti-platelet therapy (DAPT). Risk of major adverse cardiovascular or cerebrovascular events (MACCE) and clinically significant bleeding over 12 months were compared across genotype and DAPT groups by proportional hazards regression.

Results: 584 patients were treated with clopidogrel while 344 patients had alternative therapy. In the clopidogrel group, 173 patients were hetero- or homozygous for *17 and 91 patients were hetero- or homozygous for a loss of function allele (LOF; *2 or *3). Patients treated with clopidogrel were older, more commonly female, and more likely to have hypertension, diabetes, and an acute coronary syndrome (ACS) than patients on alternative therapy. There were no differences in MACCE or clinically significant bleeding events in *17 patients treated with clopidogrel compared to alternative therapy in either the total population (p=0.54) or in ACS

patients (p=0.98). Patients with LOF alleles were 3.4 times more likely in the total population (p <0.0001) and 6.7 times more likely among ACS patients (p <0.0001) to have MACCE if prescribed clopidogrel compared with alternative therapy.

Discussion: *17 patients had equivalent clinical outcomes when treated with clopidogrel or alternative P2Y12 inhibitors.