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Influence of CYP2C19*2 Polymorphism on Clinical Outcomes in Moldova's Patients Treated with Clopidogrel After Percutaneous Coronary Intervention

Marta Dogot, Daniela Galea-Abdusa, Anastasia Buza, Andrei Grib, Ghenadie Curocichin, Eleonora Vataman, Natalia Capros

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Abstract

Clopidogrel is one of the most commonly antiplatelet agents used for the secondary prevention of atherothrombotic events in patients with cardiovascular disease (CVD). Clopidogrel is a prodrug that requires biotransformation by cytochrome P450 (CYP450). This study evaluated the effect of genetic polymorphism in CYP2C19*2 on clinical response in Moldova's patients treated with clopidogrel after percutaneous coronary intervention (PCI) with drug-eluting stent (DES). A total of 172 coronary patients after PCI were treated with clopidogrel and aspirin for at least 6–12 months; we recorded major adverse cardiac events (MACE) within 6–12 months. The CYP2C19 polymorphisms were evaluated using TaqMan genotyping procedure. During a 6–12 months follow-up, the CYP2C19*2 carriers had an odds of cardiac death of 4.42 (95% CI 1.68, 11.65), of myocardial infarction of 8.69 (95% CI 2.95, 25.53), of stent thrombosis of 11.4 (95% CI 1.15, 112.98), and of unstable angina by 3.47 (95% CI 1.316, 9.149) compared with non-carriers ($p < .001$). The CYP2C19*2 gene polymorphism modulates the drug efficacy of clopidogrel in patients undergoing PCI and further enhance the risk of MACE. Clinical testing of CYP2C19 genotype can be used to personalize the selection of antiplatelet therapy and reduce the risk of major adverse cardiovascular events.

Keywords: polymorphisms, percutaneous coronary interventions, clopidogrel

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