Platelet function guided antiplatelet therapy after coronary intervention for myocardial infarction, a propensity score matched analysis from the Hungarian national registry of myocardial infarction

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Background: High platelet reactivity (HPR) is an acknowledged risk factor among patients with myocardial infarction (MI). However, due to the futility of multiple prior studies platelet function testing (PFT)-based treatment modification is not recommended. In Hungary, prasugrel is only reimbursed in patients with HPR, and therefore, the Multiplate whole-blood impedance aggregometer is widely used to guide P2Y12-inhibitor selection.

Methods: In the setting of a nation-wide MI registry, we collected clinical characteristics and platelet function data from centers of invasive cardiology. Follow-up data of patients treated with coronary intervention between March 1, 2013, and March 1, 2014 were analyzed. The risk of all-cause mortality at 1 year between patients receiving PFT-guided and non-guided antiplatelet therapies were compared using propensity score matching. HPR were uniformly defined as an ADP test value greater than 46 U.

Results: A total of 5583 patients with MI were registered. After exclusion of cases with contraindication to prasugrel, PS matching resulted in a sample of 2104 patients with adjusted characteristics. Patients with HPR received primarily prasugrel (76%) while 12% were treated with high and 12% with normal dose of clopidogrel. In the non-guided group, patients were treated predominantly with clopidogrel.

According to the adjusted analysis, 1-year mortality rates were lower for the PFT-guided than for the non-guided group. (Hazard ratio (HR) 0.574 [0.431–0.765]). In the guided group, patients with HPR switched to prasugrel had significantly improved survival when compared to those who received clopidogrel despite HPR (HR: 3.00 [95% CI 1.089–8.287], $p<0.05$.

Conclusion: In patients undergoing angioplasty for acute myocardial infarction, PFT-guided treatment is associated with lower 1-year mortality rates than unguided therapy, in patients predominantly treated with clopidogrel.