Individualized intensified antiplatelet therapy based on platelet reactivity testing reduces the incidence of cardiovascular events in patients undergoing percutaneous coronary intervention

To the Editor,

We read with great interest the article by Jeong et al. (1) titled "Impact of high on-treatment platelet reactivity on long-term clinical events in AMI patients: a fact or mirage?" published in Anatol J Cardiol 2016 Nov 16. Epub ahead of print. The authors stated that it is unclear whether platelet function testing (PFT)-based treatment modification influences the outcomes of the antiplatelet therapy. They mentioned that recent prospective randomized trials using the current PFT did not demonstrate any clinical benefit (1). However, is this true?

We performed a thorough search of the literature that revealed a substantial number of recent studies demonstrating the safety and efficacy of PFT guidance in patients undergoing percutaneous coronary intervention (PCI) (2-5). A recent meta-analysis that included 13 clinical studies and a total of 7290 patients concluded that the PFT-based intensified protocol is associated with a significant reduction in major adverse cardiovascular events, stent thrombosis, cardiovascular death, and target vessel revascularization without increasing the risk of major bleeding (2).

The authors claimed that there is little evidence to support the VerifyNow assay and Multiplate Analyzer as clinical, reliable PFT systems (1). A study involving 671 myocardial infarction patients treated with PCI in the TRANSLATE-ACS Registry who had undergone VerifyNow PFT concluded that intensification of the antiplatelet therapy is associated with low risk of ischemic events at 1 year among patients with high platelet reactivity (3). Aradi et al. (4) in their study involving 741 patients verified the clinical impact of treatment with prasugrel in patients with acute coronary syndromes who have high platelet reactivity using PFT with the Multiplate Analyzer.

Furthermore, current European Society of Cardiology (ESC) guidelines have clearly stated that PFT should be consi-dered in specific high-risk situations (compliance issue, history of stent thrombosis, suspicion of resistance, and high bleeding risk) and has a Class IIb indication (5). In the Assessment of Dual Anti-Platelet Therapy with Drug-Eluting Stents trial, the largest observational PFT study conducted to date, approximately 50% of 30-day post-PCI stent thrombosis is attributable to high platelet reactivity (5). Based on the currently available evidence, the ESC guidelines recommend the Verify Now assay, the Multiplate Analyzer, and the VASP assay for monitoring platelet inhibition during P2Y12 inhibitors administration (5).

The authors refer to studies that have methodological flaws, such as the periprocedural use of glycoprotein IIb/IIIa receptor inhibitors and the use of high-dose clopidogrel instead of potent P2Y12 inhibitors, such as prasugrel and ticagrelor, to intensify platelet inhibition; these studies do not include patients at high risk of stent thrombosis.

Several prospective observational studies involving large patient populations have demonstrated that high platelet reactivity is an independent and strong predictor of post-PCI ischemic events. In patients with high platelet reactivity who are undergoing PCI, the intensification of dual antiplatelet therapy using PFT reduces the incidence of ischemic events without increasing the risk of major bleeding.

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