Baseline Characteristics and Response to Ticagrelor among Jordanian Patients with Acute Coronary Syndrome: A Cross Sectional Study

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Abstract

Background: Ticagrelor is a representative of a new chemical drug class which inhibits P2Y12 receptors of platelets in reversiblenon competitively way. "Variability of response" or "resistance" to antiplatelet drugs is of remarkable importance. This study aimed to examine the variability in anti-platelet effect of ticagrelor in Acute Coronary Syndrome (ACS) patients.

Methods: A cross sectional study included 34 individuals aimed to quantify the extent of variability in platelet aggregation response after 6 weeks of starting ticagrelor, platelet aggregation inhibition was tested using (Multiplate®) whole blood was measured using different ADP concentrations (5 μM, 20 μM). Parameters calculated were aggregation, velocity, and area under the curve (AUC).

Results: There were 2 patients considered to have high on treatment platelet reactivity (HTPR), 6 patients were at risk of bleeding, and 24 patients had optimum response at 20 μM ADP where at 5 μM ADP 15 patients were considered at higher risk for bleeding, 18 patients were having optimum response, and no patient were considered at HTPR. For hypertension patients AUC reading was almost significantly higher at 5 μM ADP (22.4 + 8.1 vs. 15.5 + 10.6, P=0.07), and significantly higher compared to non-hypertensive patients at 20 μM ADP (30.4 + 9 vs. 20.6 + 9.6, P= 0.008).

Conclusion: Ticagrelor decrease platelet aggregation effectively, which is reflected by low on-treatment platelet reactivity, increases the risk of major bleeding events. Therefore, cardiologists might be facing a new challenge in the future: to individualize the level of platelet inhibition in order to decrease thrombotic events without increasing bleeding.