Relationship between post treatment platelet reactivity and ischemic and bleeding events at one year follow-up in acute coronary syndrome patients receiving prasugrel

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Background: Post-treatment platelet reactivity (PR) is associated with ischemic and bleeding events in patients receiving P2Y12-ADP receptor antagonists. We aimed to study the relationship between post-treatment PR after a 60 mg loading dose of prasugrel and one-year thrombotic and bleeding events.

Methods: Patients were prospectively included in this observational multicentre study if they had a successful PCI for an ACS and received prasugrel. VASP index was measured after prasugrel LD. Endpoint included the rate of thrombotic events (cardiovascular death, myocardial infarction, and stroke or death during the follow-up).

Results: Three hundreds and one patients were enrolled. Nine patients (3%) were lost to follow-up at one year. The rates of thrombotic and bleeding events at one year were 7.5 and 6.8% respectively. The mean VASP index after a 60mg LD of prasugrel was 34±23 and 76 patients (25%) were considered as having high on-treatment platelet reactivity (HTPR). Patients with HTPR had a higher rate of thrombotic events compared to good responders (19.7 vs 3.1% p<0.001). Patients with a minor or major non-CABG related TIMI bleeding had lower PR compared to patients with no bleeding events (21±18 vs 33±25% p=0.0008). In multivariate analysis, the VASP index predicted both thrombotic and bleeding events (OR: 1.44 (95% CI: 1.2–1.72; p<0.001) and 0.75 (95% CI: 0.59–0.96) p=0.024 respectively).

Conclusions: Platelet reactivity measurement after prasugrel LD predicts both ischemic and bleeding events at one year follow-up for ACS patients undergoing PCI.