

## Pharmacodynamic comparison of optimal platelet reactivity by multiple platelet function tests in Korean acute coronary syndrome patients with half-dose ticagrelor or prasugrel treatment

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**Background:** East Asians treated with potent P2Y<sub>12</sub> inhibitors, prasugrel or ticagrelor exhibit more potent platelet inhibition than clopidogrel. Whether half-dose de-escalation strategy would improve optimal platelet reactivity at maintenance in East Asian patients with acute coronary syndrome (ACS) remains uncertain.

**Method:** In de-escalation strategy single center study, eligible Korean ACS patients (n=96) were assigned to receive standard-dose ticagrelor (n=33), prasugrel (n=28), followed by half-dose reduction at 1 month for maintenance, and clopidogrel (n=35) as control. Platelet reactivity was measured by VerifyNow, light transmittance aggregometry (LTA) and multiple electrode aggregometry (MEA). The investigators aim to compare optimal platelet reactivity status (OPR, defined as 85–208 P2Y<sub>12</sub> reaction unit [PRU] for VerifyNow (VN), 16%–47% for LTA and 19–46 U for MEA) among 3 different platelet function tests at 3 months post PCI.

**Results:** At 3 months, ticagrelor achieved significantly lower PRU (17 [6–

51] vs. 95 [61–151] vs. 172 [111–204]) than prasugrel and clopidogrel, resulting OPR rate 10% vs. 57.7% vs. 60.0%, respectively. Similar results were observed at LTA method (2% [0–12] in ticagrelor vs. 18% [13–22] in prasugrel vs. 18% [11–30] in clopidogrel), with OPR rate 11.8% vs. 69.2% vs. 50.0%, respectively. However, platelet reactivity was similar by MEA method (16 [13–20] in ticagrelor vs. 17 [13–22] in prasugrel vs. 19 [14–28] in clopidogrel), with OPR rate 33.3% vs. 40.0% vs. 42.0%, respectively (all  $p > 0.005$ ). Among the three tests, resulting higher correlation between VN and LTA ( $r = 0.745$ ), MEA and LTA vs. MEA and VN showed lower correlations ( $r = 0.412$  and  $r = 0.303$ ). (Fig.)

**Conclusion:** In Korean ACS patients with half-dose de-escalation strategy after 1 month, OPR rate in ticagrelor is still rare during 3-month treatment by VN and LTA methods, however, prasugrel appears comparable to clopidogrel. VN/LTA might overestimate platelet function than MEA or MEA underestimate OPR rate than VN/LTA.

