PHARMACODYNAMIC EFFECTS OF SKIPPING TICAGRELOR MAINTENANCE DOSING FOLLOWING LOADING DOSE ADMINISTRATION

Poster Contributions
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Background: Ticagrelor reversibly binds with the P2Y12 receptor and has a half-life of ~12 hours, therefore requiring a twice-daily maintenance dose (MD) to maintain steady-state pharmacodynamic (PD) effects. However, in clinical practice the MD is often initiated only the day after the loading dose (LD). The PD impact of skipping the evening ticagrelor MD after a LD is unknown.

Methods: Patients (n=27) on maintenance aspirin (81 mg/qd) and clopidogrel (75 mg/qd) were prospectively enrolled in a two phase study. In phase 1, patients received a morning 180 mg ticagrelor LD, but not the evening 90 mg MD. After a 15-day wash-out period (patients resumed clopidogrel), phase 2 was performed in which the morning 180 mg ticagrelor LD was followed by the evening 90 mg MD. PD assessments (VerifyNow, LTA and VASP) were performed at baseline, and 2 and 24 hrs after LD.

Results: In both phases, ticagrelor LD was associated with potent platelet inhibition compared with clopidogrel already at 2 hrs (Figure). However, at 24 hrs, increased platelet reactivity was observed among patients skipping the evening ticagrelor MD as assessed by all assays (Figure). Nevertheless, platelet reactivity was still markedly lower (p<0.001) among patients skipping the evening MD compared with clopidogrel.

Conclusion: In patients on maintenance clopidogrel therapy, a ticagrelor LD is associated with prompt, potent and sustained platelet inhibition. However, skipping the evening MD of ticagrelor leads to reduced platelet inhibition.