Suboptimal Platelet Inhibition With Tirofiban in Patients Undergoing Coronary Intervention for Unstable Angina


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Background: The current dosing regimen for tirofiban during percutaneous coronary intervention (PCI) is based on limited platelet inhibition (PI) studies using 5µmol of ADP as a platelet agonist. We hypothesized that, when using 20µmol of ADP, the current tirofiban dose may not result in optimal PI in pts undergoing PCI for unstable angina (UA).

Methods: We prospectively measured PI in 102 pts (62 ± 10 yrs, 78% males) who received tirofiban (10mcg/kg, 0.15mcg/kg/min) during PCI. All pts received ASA and clopidogrel prior to the procedure. PI was measured 15 min following tirofiban bolus with the IchorTM point-of-care platelet analyzer (Helena Laboratories, Beaumont, TX), using 20µmol of ADP. Pts were classified into 2 groups: Gr I-n=61 with stable or class I Braunwald unstable angina (UA) and Gr II-n=41 with class II or III UA.

Results: Gr II pts were more likely to have received b blockers (88 vs 66%, p=0.012), IV heparin (93 vs 18%, p<0.0001), and to have a recent MI (34 vs 0%, p<0.0001). The groups were similar in other respects. PI and % of pts who achieved >70% PI in each Gr are shown below. In multivariate analysis, class II or III UA was independently associated with <70% PI (OR 11.9, 95%CI 2.5 to 57.3, p=0.002).

Conclusions: The current dose of tirofiban used in pts undergoing PCI for UA appears to be suboptimal. Our findings may explain the mixed results of recent trials with tirofiban in such pts. Large-scale, prospective studies should evaluate whether tirofiban dose adjustment will have an impact on clinical outcome.