RESTORING PLATELET FUNCTION EX VIVO BY ADDING FRESH PLATELETS WITHIN 24 HOURS OF A PRASUGREL 60 MG LOADING DOSE

ACC Oral Contributions
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Background: ACC/AHA guidelines advise a 5-7 day wait in surgery bound ACS patients to attenuate the effects of antiplatelet therapy. To reduce bleeding risk, platelet infusion may be used in some cases but the resulting recovery of platelet function is unknown. We investigated the degree of platelet function restoration by adding fresh platelets within 24 hours (h) of a prasugrel loading dose.

Methods: Healthy subjects (n=25, 30 ± 5 years, 68% male) on ASA took 60 mg prasugrel after baseline testing with platelet aggregation (PA, ADP 20μM) and VerifyNow P2Y12 assay (VN). Fresh, concentrated platelets from untreated donors were added ex vivo to subject’s blood after 2h, 6h, 12h and 24h, in volumes that raised the blood platelet counts by 40%, 60% and 80%. One sample was not supplemented (0%). Platelet function (PA and VN) in supplemented samples were compared to 0% and pretreatment baseline. Prasugrel active metabolite levels were also measured.

Results: Platelet reactivity (PA and VN) was significantly higher (p<0.05) in supplemented samples vs. respective 0% at all times (Figure 1, VN data not shown). Reactivity in all samples increased over time, with the sharpest increase seen from 2h to 6h. All results were significantly lower than pretreatment baseline of 65 ± 2.3.

Conclusions: After a prasugrel loading dose, significant functional recovery with platelet transfusion can be achieved by 6 hours. However, full restoration of platelet function is not feasible within 24h even with substantial platelet infusions.