

Acute Coronary Syndromes

IMPACT OF PLATELET TRANSFUSION ON PLATELET ACTIVATION AND AGGREGATION IN CARDIAC SURGERY PATIENTS RECEIVING ASPIRIN AND P2Y12 RECEPTOR ANTAGONISTS

Poster Contributions

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Authors: *Stephen A. O'Connor, Rejane Martin, Julien Amour, Jeremie Abtan, Mathieu Kerneis, Johanne Silvain, Pascal Leprince, Gilles Montalescot, Jean-Philippe Collet, Pitié Salpêtrière Hospital, Paris, France*

Background: It is uncertain whether platelet transfusion (PT) leads to enhanced platelet activation and aggregation when given perioperatively to treat excessive bleeding in cardiac surgery patients on aspirin and P2Y12 receptor antagonists.

Methods And Results: A total of 33 patients (67% male) treated with aspirin and either clopidogrel (n=28) or prasugrel (n=5) undergoing cardiac surgery with cardiopulmonary by-pass that received PT were included. We assessed platelet function before and after PT. Compared to baseline there was an increase in platelet activation, as assessed by vasodilator-stimulated phosphoprotein platelet reactivity index (VASP-PRI) (40.6 ± 22.9 vs 52.9 ± 17.0 ; $p < 0.0014$) with similar absolute increase in clopidogrel compared to prasugrel treated patients (14.1 vs 13.7% $p = 0.34$). P-selectin expression induced by TRAP $1 \mu\text{M}$ was also enhanced (79.3 ± 9.7 vs 85.5 ± 4.5 ; $P = 0.018$). There was a non-significant increase in maximum platelet aggregation (MPA) as assessed by light transmission aggregometry (LTA) in response to ADP (27.5 ± 24.9 vs 33.4 ± 17.9 ; $p = 0.1189$). Maximal activation to ADP (MA-ADP) with thromboelastograph (TEG) platelet mapping[®] (24.6 ± 17.7 vs 25.8 ± 16.1 ; $P = 0.42$) did not increase but there was a significant increase in response to arachidonic acid (19.7 ± 16 vs 40 ± 18.4 ; $P = 0.0011$).

Conclusions: Platelet transfusion appears to lead a significant restoration of platelet function in cardiac surgery patients treated by aspirin and P2Y12 receptor antagonists.

