

Comparative Analysis of Prothrombin Complex Concentrate and Fresh Frozen Plasma in the Management of Perioperative Bleeding after Coronary Artery Bypass Grafting

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Background and Aim: Recent studies suggested that prothrombin complex concentrate (PCC) might be more effective than fresh frozen plasma (FFP) to reduce red blood cell (RBC) transfusion requirement after cardiac surgery. The benefits and risks associated with the use of PCC over FFP have been investigated in this study including patients undergoing isolated coronary artery bypass grafting(CABG) from a prospective, multicenter registry.

Methods: This is a comparative analysis of 416 patients who received postoperatively FFP and 119 patients who received PCC with or without FFP after isolated CABG.

Results: Mixed-effects regression analyses adjusted for multiple covariates and participating centers showed that PCC significantly decreased RBC transfusion (67.2% vs. 87.5%, adjusted OR 0.319, 95%CI 0.136-0.752) and platelet transfusion requirements (11.8% vs. 45.2%, adjusted OR 0.238, 95%CI 0.097-0.566) compared with FFP. The PCC cohort received a mean of 2.7±3.7 (median, 2.0, IQR 4) units of RBC and the FFP cohort received a mean of 4.9±6.3 (median, 3.0, IQR 4) units of RBC (adjusted coefficient, -1.926, 95%CI -3.357-0.494). The use of PCC increased the risk of KDIGO acute kidney injury (41.4% vs. 28.2%, adjusted OR 2.300, 1.203-4.400), but not of KDIGO acute kidney injury stage 3 (6.0% vs. 8.0%, OR 0.850, 95%CI 0.258-2.796) when compared with the FFP cohort.

Conclusions: These results suggest that the use of PCC compared with FFP may reduce the need of blood transfusion after CABG. In view of the observational nature of this study, these results should be considered hypothesis generating and need to be confirmed in randomized trials.