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Keywords:

Abstract: Approximately 3.5 million units of platelets are transfused in the United States each year to patients undergoing open-heart surgery with cardiopulmonary bypass (CPB). CPB is a known contributor to platelet loss and platelet dysfunction leading to disruption of hemostasis. Impaired hemostasis results in excess bleeding in 5–25% of all patients undergoing CPB. For this reason, it may be beneficial to measure platelet number and function in these patients. The purpose of this study was to compare the Plateletworks™ platelet function analyzer to the thromboelastograph (TEG) in predicting postoperative hemostatic outcomes as measured by blood product use and chest tube (CT) drainage. This study consisted of 35 adult patients undergoing cardiac surgery with cardiopulmonary bypass at Rush- Presbyterian-Saint Luke's Medical Center (RPSLMC). The Plateletworks™ and TEG tests were performed preoperatively, after protamine was given, and 24 hours postoperatively on all patients. Plateletworks™ demonstrated a statistically significant change in platelet function as shown by the adenosine diphosphate (ADP) reagent tube from the preoperative period to the removal of the aortic cross clamp ($p = .011$). The TEG did not demonstrate a significant change in the k-time and maximum amplitude (MA), but did show a significant change in the alpha angle from the pre-operative to postoperative sample ($p = .035$). A correlation was found between Plateletworks™ collagen reagent tubes preoperatively and CT drainage ($p = .048$, $r = -0.324$). No statistical correlation was established between TEG parameters and CT drainage at any time interval. TEG preoperative MA showed a correlation to receipt of blood products ($p = .016$). When comparing the Plateletworks™ to the TEG in this study, the Plateletworks™ system was a more useful predictor of blood product use and chest tube drainage.