

## **AACP 2019 Paper Presentation**

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### **RETROSPECTIVE REVIEW OF ROTATIONAL THROMBOELASTOMETRY (ROTEM) DURING REWARMING IN CARDIAC SURGICAL PATIENTS LESS THAN TEN KILOGRAMS**

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*Introduction:* The use of ROTEM during rewarming from cardiopulmonary bypass (CPB) can help guide appropriate treatment to normalize coagulation through administration of blood products. The purpose of the study was to retrospectively review ROTEM values in pediatric cardiac surgery patients to calculate a ROTEM coagulation index (CI) and analyze the effect of hemodilution on coagulation status.

*Methods:* After IRB approval, ROTEM parameters were determined for 98 consecutive patients during rewarming on cardiopulmonary bypass. The patients (n=98) were divided into four weight groups: Group 1 <4 kilograms, Group 2 4.1-6.0 kilograms, Group 3 6.1-8.0 kilograms, and Group 4 8.1-10 kilograms. Based on a previous randomized study, patients weighing up to 8 kilograms received a unit of fresh frozen plasma (FFP) in the pump prime. A coagulation index (CI) formula for ROTEM based on TEG was derived using normal pediatric ROTEM values. The new ROTEM CI reference range is -3.27 to +3.27. All blood products administered during and immediately following surgery were reported.

*Results:* The median ROTEM CI for each group was as follows: Group 1: -3.53, Group 2: -4.17, Group 3: -2.88, and Group 4: -8.23. The new ROTEM CI reference range is -3.27 to +3.27. The CI revealed that Group 4 had a significantly higher CI and significantly lower values for rewarming fibrinogen level, alpha angle, fibrinogen clot firmness, and fibrinogen maximum clot firmness. The lack of fresh frozen plasma in the prime of Group 4 may be a significant factor accounting for the abnormally low ROTEM values seen in this patient group. Group 1 had significantly a lower platelet count during rewarming than Group 4.

*Conclusion:* The study displays the effectiveness of fresh frozen plasma in CPB pump prime. Although Group 4 had a small number of patients, if FFP use was expanded to patients between 8-10 kg, this may improve their ROTEM CI and subsequent need for transfusions.