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Abstracttitel: An Innovative Assay for Monitoring Heparinization and Direct Thrombin Inhibitors in CPB (Cardiopulmonary Bypass) Surgery.

PURPOSE: The ACT (Activated Clotting Time) test has been employed in the past 40 years to monitor high levels of UFH (unfractionated heparin) in CPB (cardiopulmonary bypass) surgery. It lacks correlation with the laboratory heparin assays during CPB. It is adversely affected by hemodilution, low platelet counts/dysfunction. The ACT is uncontrolled, and its uncontrollable dependency on patient sample, all components of coagulation process derived from patient blood.

METHOD: Heptest-POC-Hi, (HPOCH) is a new point-of-care quantitative anti-Xa clotting assay using citrated whole blood. Because the major sites of action of heparin are Factor Xa and thrombin, a more direct approach than the ACT for measuring heparinization is developed. It is a single-step assay. The HPOCH single-test reagent vial comprises of Factors Xa, II, V, platelet substitute, Antithrombin-III, Fibrinogen and Calcium chloride, all co-lyophilized. For testing, one adds 500 μ L blood to a HPOCH reagent vial and measures the clotting time using a semi-automatic coagulometer.

RESULTS: In a clinical trial of 125 consecutive patients undergoing CPB surgery, it confirmed that ACT neither correlated with the amidolytic Factor Xa nor HPOCH during CPB. The HPOCH correlated well with the amidolytic Factor Xa assay. Furthermore, HPOCH was not influenced by hemodilution, platelet counts/activity and aprotinin. (*P. Hellstern et.al. JECT. 2007;39:81-86*).

CONCLUSION: The employment of Heptest-POC-Hi could aid in a more specific and accurate measurement of heparin anticoagulant activity bottom line, a better patient care.