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Role of whole blood coagulation assays for management of bleeding disorders

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Abstract

Rapid advances in the technology of measuring blood coagulation in whole blood provides an opportunity for hematologists to play a major role in the management of inherited and acquired bleeding disorders. The FDA's approval of the whole blood coagulation analyzer produced by ROTEM provides a series of lab tests that hematologists can use to diagnose and treat life-threatening bleeding disorders. The Medical University of South Carolina has implemented a multidisciplinary blood management program that utilizes ROTEM assays to manage bleeding in patients with trauma, liver transplantation, CABG and other general medical bleeding disorders. Several European hospitals have utilized ROTEM testing and have demonstrated that a ROTEM-based algorithm provides a cost-effective approach to managing blood product usage. In this discussion, the data previously reported in Europe related to surgical and medical bleeding disorders will be reviewed. In addition, the performance characteristics of the ROTEM instrument will be discussed. The Blood Management Program and ROTEM-testing algorithm at MUSC will be summarized. We will describe the clinical use of ROTEM in cases of life-threatening bleeding and acquired coagulation factor disorders, providing specific examples of how ROTEM testing can aide in the diagnosis and treatment of complicated coagulation disorders such as factor V and Factor VIII inhibitors. In conclusion, ROTEM testing provides an important tool for non-malignant hematologists in the Hospital setting to manage the safe and effective use of blood and blood products, and also aids in the diagnosis and treatment of acquired coagulation inhibitors.