RESULTS OF THROMBELASTOGRAPHY ANALYSIS ON A BOVINE MODEL IMPLANTED WITH THE HEARTQUEST™ VAD

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Coagulation and platelet inhibition levels are critically monitored for patient stability during various cardiothoracic surgeries with the assistance of new technology such as thrombelastography. Our aim is to use thrombelastography (TEG®) measurements to closely monitor the HeartQuest Ventricular Assist Device effect on hemostasis of bovine blood. The viability of TEG® on bovine blood was analyzed by obtaining measurements for 2 LVAD-implanted and 5 non-implanted calves. We utilized Haemoscope Corporation’s TEG® Hemostasis Analyzer to obtain thrombelastographs for the samples. Blood was collected and tested once for the non-implanted calves and periodically for the two calves implanted with the HeartQuest™ VAD. The implanted calves were on anticoagulation and platelet inhibition therapies. Platelet function and anticoagulation levels were measured and analyzed from these calves. Prothrombin (PT) values were obtained from the same samples separately for comparison with resulting TEG® values. Platelet function was determined using a platelet aggregometer for comparison with TEG® platelet mapping analysis. Tests were conducted to determine if there was a relation between anticoagulation therapy, platelet inhibition therapy, TEG® values, platelet aggregation values, and plasma measured PT values. Results from the VAD calves show a wide variation for clot times, clot strength, platelet inhibition, and PT values. There is also a wide variation of baseline values for all animals. Further testing of bovine blood is required to determine a pattern of anticoagulation and platelet inhibition levels based on results from the TEG® analyzers. The optimal route for establishing anticoagulation and platelet inhibition therapeutic dosages for bovine blood includes using TEG® analyzers concurrently with conventional tests.