Achieving Hemostasis in a Jehovahs Witness Patient Undergoing Re-do Cardiac Surgery

Vadlamudi R
Emory University School of Medicine , Atlanta , GA, USA

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Author: Ratna Vadlamudi, MD (Fellow)
Faculty Mentor: Kenichi Tanaka, MD
Affiliation: Emory University School of Medicine

Introduction: Jehovahs witness patients present unique management considerations for anesthesiologists, particularly in the setting of surgery employing cardiopulmonary bypass (CPB). We describe hemostatic management using a combination of recombinant and plasma-derived purified agents in a Jehovahs witness patient undergoing re-do cardiac surgery.

Case Presentation: A 53 y.o. male with a history of aortic valve replacement for aortic insufficiency was found to have an aortic root aneurysm. At the time of surgical intervention, his root was 7 cm. He was started on recombinant erythropoietin and iron supplementation 4 weeks prior to surgery and warfarin was held 7 days prior to surgery. Intraoperative TEE revealed normal left and right ventricular function and a stable mechanical aortic valve. Starting hematocrit was 44%, platelet count was 187,000 and activated clotting time (ACT) was 98 seconds. After induction of general anesthesia, 4 units of autologous blood were collected. CPB was initiated after systemic heparinization and after 60 minutes on CPB, 1140 IU of antithrombin III (AT) was given. Upon reperfusion, tranexamic acid was started with a 15 mg/kg load followed by 7.5 mg/kg/hr for 4 hours. Prior to separating from CPB, desmopressin (DDAVP) 40 mcg was given intravenously. CPB lasted for 150 minutes and the patient was weaned from CPB with vasopressor support as well as atrioventricular pacing. Heparin was reversed with protamine 200 mg and the autologous blood was transfused in addition to 4.4 g of purified fibrinogen concentrate. ACT at that time was 129 seconds with adequate hemostasis; hematocrit was 27% and fibrinogen was 158 mg/dL at the time of transport to the intensive care unit. Post-operative bleeding (50-100 mL/hr in the first 4 hours) was managed with additional fibrinogen (2.2 g) and recombinant activated factor VII (2 mg). The patient was extubated on post-operative day (POD) # 2 and discharged home on POD # 5.

Discussion: Achieving hemostasis can be a challenge in any patient who presents for re-do cardiac surgery. Excessive bleeding can necessitate re-exploration, which can lead to increased morbidity and mortality.1 Given our patients beliefs, we chose a regimen that would maximize hemostasis while respecting his wishes. Our patient agreed to acute normovolemic hemodilution, cell saver blood and factor concentrates. Adequate levels of AT are deemed important to optimize heparin anticoagulation and preserve coagulation factors.3 DDAVP was given to elevate von Willebrand factor and factor VIII levels, which may reduce post-operative blood loss.2 We replenished his fibrinogen levels, which in high enough levels has been shown to compensate for low platelet counts.3 In summary, cardiac surgery involving CPB is associated with hemodilution and derangements of the coagulation cascade. This case represents successful management of those problems in a Jehovahs witness patient.

References: