

26370 - IMPACT OF A TREATMENT PROTOCOL FOR EXCESSIVE BLOOD LOSS IN CARDIAC SURGERY

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INTRODUCTION: Excessive blood loss (EBL) is a common complication of cardiac surgery that is associated with increased morbidity and mortality. Treatment protocols aimed at cardiac surgical patients with EBL may improve outcomes by allowing for prompt and optimal care. To date, however, such protocols have been primarily directed towards improving blood product utilization rather than improving clinical outcomes.

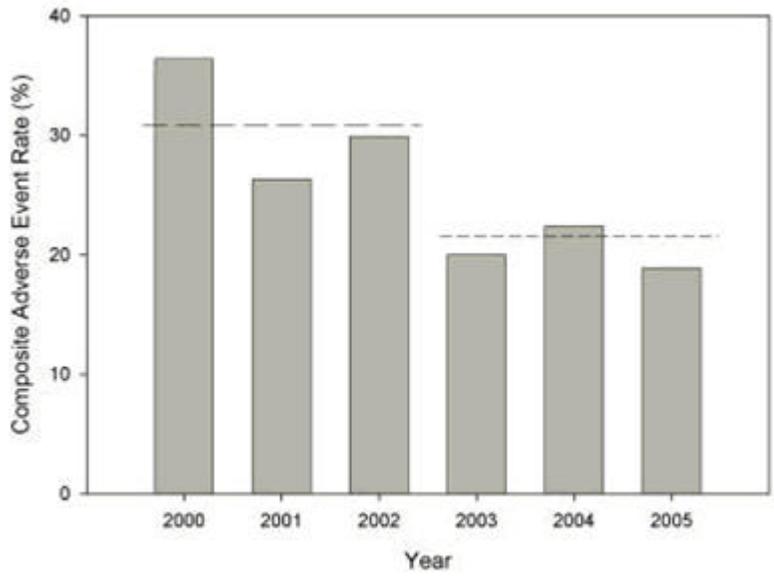
The objective of this observational study was to assess the independent effect of a blood management treatment protocol on the outcome of cardiac surgical patients with EBL.

METHODS: In November 2002, an institutional treatment protocol for rapid identification and aggressive treatment of excessively bleeding cardiac surgical patients was implemented in order to determine the patients' eligibility for treatment with recombinant factor VIIa. The independent relationship between protocol implementation and adverse outcomes was measured by comparing the outcomes of patients with EBL who underwent surgery at the study institution during the three years before protocol implementation with those who underwent surgery during the two and a half years after protocol implementation. Multivariate logistic regression analysis was used to control for the effects of confounders. EBL was defined as 4 or more units of packed red blood cells transfused within 24 hour of surgery. A composite adverse event that included death, renal failure, stroke, and sepsis was the primary outcome. Bootstrapping and sensitivity analyses were used to confirm the validity of the results.

RESULTS: 11,324 patients underwent surgery at our Institution during the study period, 1863 (16%) of whom were classified as having had EBL. Of those with EBL, 954 were in the pre protocol period and 909 were in the post protocol period. After controlling for all measured confounders, protocol implementation was associated with a 36% reduction (95% Confidence interval 24%-52%) in the odds of the primary composite outcome (Fig.1). This estimate was stable across different modeling conditions as well as in bootstrap sampling.

DISCUSSION: In conclusion, in this large before/after study, we found that the implementation of a practical blood management protocol for cardiac surgical patients with EBL was independently associated with a marked reduction in adverse postoperative events. Randomized controlled trials are required to determine whether or not this is a cause-effect relationship.

REFERENCES: 1. Transfus Sci 1998 19:97-105 2. Ann Thorac Surg 2000 70:S20-S32 3. Transfusion 2004 44:1453-62.



--- Pre-algorithm Average
--- Post-algorithm Average