

# **Bloodless Cardiac Surgery is Associated With Decreased Morbidity and Mortality.**

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Background: Blood transfusion with cardiac surgery accounts for 20% of transfusions in the United States. The effect of perioperative transfusion on cardiac surgery outcomes is unknown. We hypothesized that cardiac surgery with perioperative blood transfusion was associated with worse outcomes. Methods: A prospectively maintained (Society of Thoracic Surgeons) institutional database was analyzed from 2000 to 2005. All patients undergoing coronary artery bypass and/or valve operations were evaluated for the association of preoperative and intraoperative risk factors with blood transfusion. The association of transfusion with postoperative complications and mortality was evaluated. Results: During the study period, 2691 patients met inclusion criteria. Sixty-four percent received transfusions. Preoperative risk factors associated with transfusion ( $p < 0.05$ ) were lung disease, elevated creatinine, peripheral vascular disease, and previous cardiac interventions. Patients requiring transfusion were older (mean 65.2 vs. 61.2 years,  $p < 0.001$ ). Transfusion was associated with longer cross-clamp (median 78 vs. 88 minutes,  $p < 0.001$ ) and perfusion times (median 114 vs. 128 minutes,  $p < 0.001$ ). Perioperative blood transfusion was associated with increased postoperative complications (53.5% vs. 30.5%,  $p < 0.001$ ). Significant transfusion-associated complications were renal failure, prolonged ventilation time, pneumonia, cardiac arrest, gastrointestinal complications, atrial fibrillation, stroke, myocardial infarction, and bleeding requiring reoperation. Blood transfusion was associated with an increased operative mortality (3.4% vs. 1.7%,  $p = 0.005$ ) and length of stay after surgery (median 6 vs. 5 days  $p < 0.001$ ). Conclusion: Identification and management of risk factors associated with transfusion may reduce the transfusion requirement, minimize perioperative complications and improve outcomes. Bloodless cardiac surgery is associated with a decreased morbidity and mortality