

Morbidity and mortality risk associated with red blood cell and blood-component transfusion in isolated coronary artery bypass grafting.

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OBJECTIVE: Our objective was to quantify incremental risk associated with transfusion of packed red blood cells and other blood components on morbidity after coronary artery bypass grafting. **DESIGN:** The study design was an observational cohort study. **SETTING:** This investigation took place at a large tertiary care referral center. **PATIENTS:** A total of 11,963 patients who underwent isolated coronary artery bypass from January 1, 1995, through July 1, 2002. **INTERVENTIONS:** None. **MEASUREMENTS AND MAIN RESULTS:** Among the 11,963 patients who underwent isolated coronary artery bypass grafting, 5,814 (48.6%) were transfused. Risk-adjusted probability of developing in-hospital mortality and morbidity as a function of red blood cell and blood-component transfusion was modeled using logistic regression. Transfusion of red blood cells was associated with a risk-adjusted increased risk for every postoperative morbid event: mortality (odds ratio [OR], 1.77; 95% confidence interval [CI], 1.67-1.87; $p < .0001$), renal failure (OR, 2.06; 95% CI, 1.87-2.27; $p < .0001$), prolonged ventilatory support (OR, 1.79; 95% CI, 1.72-1.86; $p < .0001$), serious infection (OR, 1.76; 95% CI, 1.68-1.84; $p < .0001$), cardiac complications (OR, 1.55; 95% CI, 1.47-1.63; $p < .0001$), and neurologic events (OR, 1.37; 95% CI, 1.30-1.44; $p < .0001$). **CONCLUSIONS:** Perioperative red blood cell transfusion is the single factor most reliably associated with increased risk of postoperative morbid events after isolated coronary artery bypass grafting. Each unit of red cells transfused is associated with incrementally increased risk for adverse outcome.