

Increased risk of infection and mortality in women after cardiac surgery related to allogeneic blood transfusion.

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Background: Infection and mortality rates are greater in women than in men after cardiac surgery. This study was conducted to assess whether allogeneic blood transfusion could partially account for this gender difference, as transfusion has been associated with immunomodulation. **Methods:** A cohort study was conducted in 380 patients at the University of Rochester Medical Center. Subjects were adult patients who underwent primary coronary artery bypass graft (CABG) surgery, primary valve replacement surgery, or both. Information was collected about blood components transfused, as well as postoperative infection, pulmonary dysfunction, and in-hospital mortality. **Results:** Women were more likely to receive allogeneic red blood cells (RBCs) or platelets than men (odds ratio [OR] 21.6, 95% CI 3.8, 124.2) and a greater quantity of blood than men. Patients who received allogeneic blood were 4.4 times more likely to develop an infection than those who did not (95% CI 1.5, 13.2). There was a positive linear correlation between number of units of blood received and number of days with fever ($p < 0.001$) and hospital length of stay ($p < 0.001$). This was particularly evident in patients who received four or more units of nonleukoreduced blood components. Women had a greater risk of infection ($p = 0.005$), pulmonary dysfunction ($p = 0.005$), and mortality ($p = 0.007$) than men during hospitalization.

Conclusions: One reason for the greater mortality in women after cardiac surgery may be the increased likelihood of receiving nonleukoreduced allogeneic RBCs and platelets. Transfusion increased the risk of infection; infection, then, increased the likelihood of pulmonary dysfunction and mortality.