

Restrictive use of blood transfusions during cardiac surgery shows comparable outcomes

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Use of stricter guidelines for the use of red blood cell transfusions for patients undergoing cardiac surgery was associated similar rates of death and severe illness compared to patients who received more transfusions, according to a study in the October 13 issue of *JAMA*. Another study in this issue of *JAMA* examines the variation in the use of blood transfusions for patients undergoing cardiac surgery.

Cardiac surgery is associated with a high rate of blood transfusion. The rationale for red blood cell (RBC) transfusion is based on the observation that anemia is an independent risk factor for illness and death after cardiac operations. However, transfusions have been associated with high rates of these poor outcomes in critically ill patients, and some recent studies have shown worse outcomes compared with nontransfused patients after cardiac surgery, according to background information in the article. "There is a lack of evidence regarding optimal blood transfusion practice in patients undergoing cardiac surgery," the authors write.

Ludhmila A. Hajjar, M.D., Ph.D., of the Hospital das Clinicas da Faculdade de Medicina da Universidade de Sao Paulo, Brazil, and colleagues conducted the Transfusion Requirements After Cardiac Surgery (TRACS) study to examine whether a restrictive strategy of RBC transfusion was as safe as a liberal strategy in patients undergoing elective cardiac surgery. The [randomized clinical trial](#) was conducted between February 2009 and February 2010 in an [intensive care unit](#) (ICU) at a university hospital cardiac surgery referral center in Brazil

and included 502 adult patients who underwent [cardiac surgery](#) with cardiopulmonary bypass. Patients were randomly assigned to a liberal strategy of blood transfusion (to maintain a hematocrit [the volume percentage of [red blood cells](#) in whole blood] of 30 percent or greater) or to a restrictive strategy (hematocrit 24 percent or greater). The overall average hematocrit values in the ICU were 31.8 percent in the liberal-strategy group and 28.4 percent in the restrictive-strategy group.

A total of 198 of 253 patients (78 percent) in the liberal-strategy group and 118 of 249 (47 percent) in the restrictive-strategy group received a [blood transfusion](#). The researchers found that the primary composite outcome measured at 30 days - death from any cause, cardiogenic shock, acute respiratory distress syndrome, or acute renal injury requiring dialysis or hemofiltration during the hospital stay-occurred in 10 percent of patients in the liberal-strategy group and in 11 percent in the restrictive-strategy group. Independent of transfusion strategy, the number of transfused red blood cell units was an independent risk factor for clinical complications or death at 30 days.

There were no significant differences in the occurrence of cardiac, respiratory, neurologic, or infectious complications, or severe bleeding requiring reoperation. There were also no differences in lengths of ICU or hospital stay.

The authors suggest that the rationale for implementing a restrictive transfusion strategy is based on many studies that have shown a lack of benefit and, at the same time, substantially increased costs and adverse effects associated with RBC transfusion, including transmission of viral and bacterial diseases and transfusion-related acute lung injury.

More information: JAMA. 2010;304[14]:1559-1567.

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