Effect of duration of storage of red blood cells transfused for cardiac surgery

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Although some studies have suggested that transfusion of stored red blood cell (RBC) concentrates may be harmful, as blood undergoes several physiological changes during storage, an analysis of patients who underwent cardiac surgery in Sweden over a 16-year period found no association between duration of RBC storage and risk of death or serious complications, according to a study in the October 20 issue of *JAMA*.

Ulrik Sartipy, M.D., Ph.D., of Karolinska University Hospital, Stockholm, Sweden and colleagues identified all patients in Sweden who underwent coronary artery bypass graft surgery, heart valve surgery, or both between 1997 and 2012. Transfusion data were obtained from a nationwide register of blood transfusions. Linkage with national health data registers provided vital status and adverse outcomes. Blood services in Sweden are part of the public health care system and follow national guidelines, whereby the oldest available blood unit of the appropriate blood type is allocated first.

During the study period, 47,071 patients were transfused in connection with cardiac surgery in 9 Swedish hospitals. Of these patients, 37 percent exclusively received RBCs stored less than 14 days; 27 percent, RBCs stored 14-27 days; 9 percent, RBCs stored 28-42 days; and 28 percent, RBCs of mixed age. Compared with recipients of RBCs stored for less than 14 days, there was no association between transfusion of RBCs stored 14-27 days or 28-42 days and 30-day, 2-year and 10-year mortality. There was no association with risk of selected serious complications.

"These results complement recent randomized trials in providing further reassurance of the safety of current blood storage practices," the authors write.

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