

Blood Transfusions Linked To Increased Mortality In Patients Suffering From Cardiac Episodes

Date: March 20, 2006

Source: American College of Cardiology

Summary: The controversial practice of blood transfusions for patients suffering from cardiac episodes may lead to an increased risk of mortality, and may be correlated to transfusion blood type and blood age, according to research presented recently at the American College of Cardiology Annual Scientific Session.

The controversial practice of blood transfusions for patients suffering from cardiac episodes may lead to an increased risk of mortality, and may be correlated to transfusion blood type and blood age, according to research presented recently at the American College of Cardiology Annual Scientific Session. ACC.06 is the premier cardiovascular medical meeting, bringing together more than 30,000 cardiologists to further breakthroughs in cardiovascular medicine.

The Deleterious Impact of Blood Transfusions on Mortality in Patients with ST-Elevation Myocardial Infarction

Although opinion on blood transfusions as post-heart attack treatment is divisive, it is common practice for patients who have recently suffered from myocardial infarction, or heart attacks. Study authors from the Cleveland Clinic Foundation in Ohio researched the death rate of heart attack patients who received blood transfusions and found that these transfusions are associated with a markedly increased risk of mortality.

Researchers examined the death rate of 4,073 patients with ST-elevated myocardial infarction 30 days after the heart attack occurred. Among the 363 patients who received transfusions, the post-heart attack death rate after 30 days was 13 percent, compared to just five percent for the 3,710 non-transfused patients. After adjusting for baseline characteristics, transfusion was still associated with higher mortality.

Data showed that the patients who received transfusions were older, more likely to be female, and more likely to suffer from peripheral vascular disease. In addition, they were also more likely to have a history of diabetes and smoking.

"The research suggests that blood transfusions might be associated with increased mortality, but substantial caution should be applied. Blood transfusions are either harmful to patients or they are merely a marker for patients with a more serious medical condition," said Vivek Rajagopal, M.D., Cleveland Clinic Foundation and lead author of the study. "In either case, more research is necessary to determine the appropriate role of blood transfusions in the management of these patients."

Blood Transfusion in Patients Undergoing Primary Percutaneous Coronary Intervention for Acute Myocardial Infarction: Analysis from the CADILLAC Trial

The practice of blood transfusions for patients undergoing percutaneous coronary intervention (PCI) is contentious and associated with an increased risk of mortality. However, little is known about the effects of transfusions on patients with acute myocardial infarction (AMI) undergoing primary PCI. Scientists from the Columbia University Medical Center in New York evaluated the outcomes of blood transfusions on these patients and found that those receiving transfusions experienced a notably increased risk of early and late mortality and stroke.

Of the 2,060 patients studied, 82 received a blood transfusion that was not related to coronary bypass grafting. Results found that patients who underwent blood transfusions had strikingly higher rates of deaths and stroke in-hospital, as well as at 30 days and one year post heart attack. Patients experienced a greater than 20 percent chance of death after one year, and an approximately 10 percent greater chance of death in-hospital or after 30 days. These patients were also more likely to be older, female and have a higher prevalence of prior gastrointestinal bleeding, chronic renal insufficiency, lower body mass index, larger infarcts size and lower rates of procedural success.

"Given the outcomes of the CADILLAC trial, the judicious administration of blood transfusions is warranted in patients treated with primary PCI for acute myocardial infarction," said Eugenia Nikolsky, M.D., Ph.D., Columbia University Medical Center and lead author of the study. "More research must be conducted to evaluate the safety and efficacy of blood transfusions in these patients to ensure they have the best chance of recovery possible." Blood Type and the Age of the Red Cells Transfused Affects Mortality After Percutaneous Coronary Intervention (Abstract 997-245)

Acute blood loss anemia is a common complication after percutaneous coronary intervention (PCI), which leads to thousands of blood transfusions each year. However, research shows that this practice may put patients at increased risk of mortality. Researchers from the William Beaumont Hospital in Michigan explored the impact of blood type and age on mortality after blood transfusions and found that both blood type and blood age can significantly impact a patient's overall chance of survival after PCI and blood transfusion.

Researchers analyzed the age and type of blood used in red cell transfusions after PCI for 326 patients between January 1995 and April 2003. Patients who received blood that was more than 25 days old were less likely to survive five years after PCI. Also, patients who received blood type A experienced a 30 percent increased risk of mortality five years after PCI, while patients who received type AB blood had a 25 percent increased risk, compared with type O blood. In addition, type A and AB blood was significantly older than type O blood. Even after adjusting for baseline differences, transfusion of type A and AB blood was independently associated with increased mortality.

On the whole, patients who died within five years of transfusion after catheterization were more likely to have lower baseline kidney function. In addition, they were also more likely to have catheterization complications including intubation and kidney failure.

"Although blood transfusions can be vital to managing PCI-associated complications such as acute blood loss anemia, they often have serious complications. Specific blood types have been associated with increased clotting factors, that could lead to future cardiovascular events," said Peter S. Kim, M.D., Ph.D., William Beaumont Hospital and lead author of this study. "Examining which factors make blood transfusions less successful opens the door to improving current transfusion practices."