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News

STS Press Release

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Blood Transfusions During Heart Surgery Increase Risk of Pneumonia

Higher volume of transfused blood further increases pneumonia risk

San Diego – Patients who receive red blood cell transfusions during coronary artery bypass grafting (CABG) surgery are at an increased risk of developing pneumonia, according to an abstract released today at the 51st Annual Meeting of The Society of Thoracic Surgeons.

“Pneumonia is a known risk following CABG surgery, and developing it has been shown to significantly increase a patient’s risk of morbidity and mortality,” said Donald S. Likosky, PhD, from the University of Michigan Health System in Ann Arbor, who led the study. “Previous research has shown that one in every 20 CABG patients develop a major infection, with pneumonia being the most common type of infection.”

Dr. Likosky and colleagues examined data on 16,182 patients who underwent CABG surgery between 2011 and 2013 at any of the 33 hospitals participating in the Michigan Society of Thoracic and Cardiovascular Surgeons Quality Collaborative.

Key Points

- Red blood cell transfusions during CABG surgery are associated with significantly increased odds of developing pneumonia.
- Among patients undergoing CABG surgery, the researchers found a dose-dependent relationship between the volume of red blood cells transfused and odds of post-operative pneumonia.
- The dose-dependent relationship was consistent across clinical subgroups.

Among participants in the study group, 6,451 (39.9%) received red blood cell transfusions and 576 (3.6%) developed pneumonia.

The researchers found a significant association between red blood cell transfusion and the occurrence of pneumonia. They also found that the risk of developing pneumonia increased with the volume of red blood cells transfused. Results showed that patients receiving one or two units of red blood cells had double the odds of developing pneumonia compared to patients not receiving transfusion, while those who received six units or more of red blood cells had 14-fold increased odds of developing pneumonia. The dose-dependent relationship was consistent across clinical subgroups and was not affected by other blood products, such as platelets.

“The ability to store and transfuse blood is one of medicine's greatest accomplishments, but we are continuing to see that receiving a blood transfusion may alter a patient's ability to fight infection,” said James R. Edgerton, MD, from The Heart Hospital, Baylor Plano in Texas, who was not affiliated with the study. “In their study, Dr. Likosky and colleagues have identified an increased risk of pneumonia after transfusion, which is an important breakthrough because it allows physicians to remain vigilant for the onset of pneumonia and initiate therapy early in hopes of shortening its course and severity. It also enables physicians to initiate preventive therapies in patients who have been transfused, which will contribute to better care of our patients.”

“Patients should receive red blood cell transfusions based on clinical need,” added Dr. Likosky. “Surgical teams may have opportunities to reduce the need for transfusions among patients, thereby reducing the risk of secondary complications.”

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For a copy of the abstract contact Cassie McNulty at 312-202-5865 or cmcnulty@sts.org.

Founded in 1964, The Society of Thoracic Surgeons is a not-for-profit organization representing more than 6,900 cardiothoracic surgeons, researchers, and allied health care professionals worldwide who are dedicated to ensuring the best possible outcomes for surgeries of the heart, lung, and esophagus, as well as other surgical procedures within the chest. The Society's mission is to enhance the ability of cardiothoracic surgeons to provide the highest quality patient care through education, research, and advocacy.