Reducing need for blood transfusion during heart surgery is focus of new practice guideline

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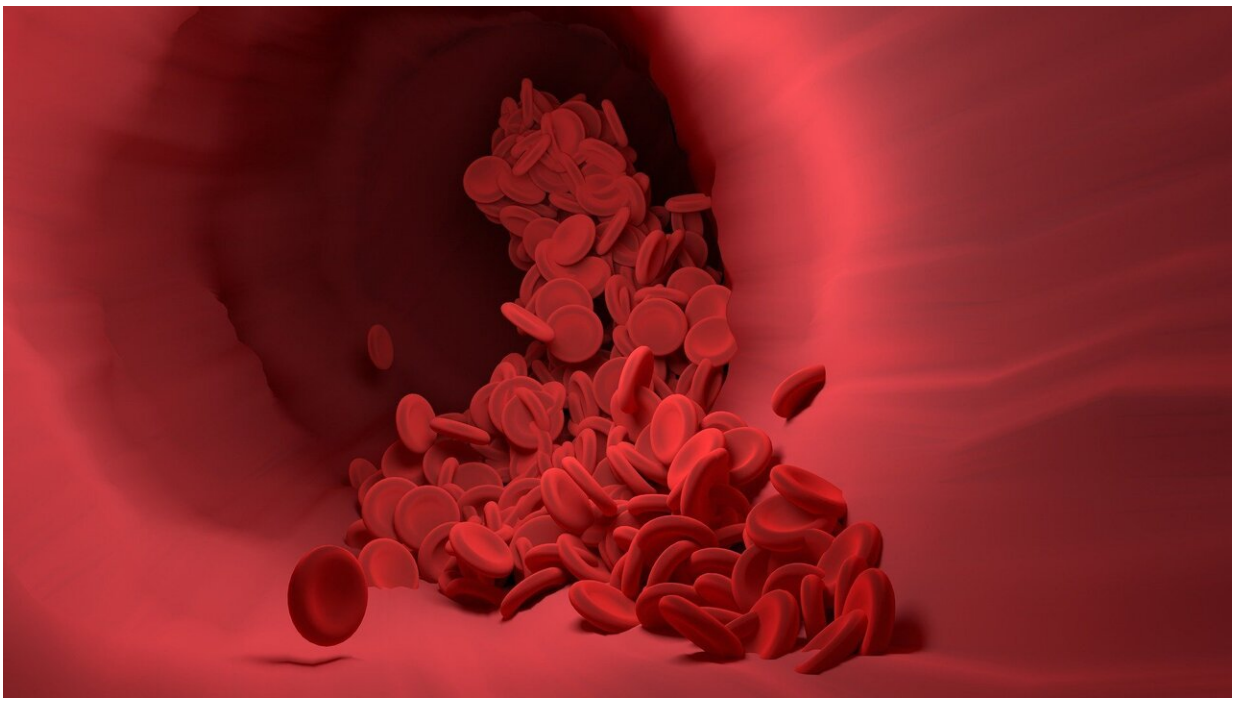

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Four leading medical specialty societies released a new clinical practice guideline today that includes recommendations for reducing blood loss during heart surgery and improving patient outcomes. The document, a multidisciplinary collaboration among The Society of Thoracic

Surgeons, the Society of Cardiovascular Anesthesiologists, the American Society of ExtraCorporeal Technology, and the Society for the Advancement of Patient Blood Management, is available online in The *Annals of Thoracic Surgery* and two other journals.

"As medicine evolves and we learn more, it always is important to review past assumptions, validate new information, and concisely present the best current recommendations," said senior author Susan D. Moffatt-Bruce, MD, Ph.D., MBA, from the Royal College of Physicians and Surgeons of Canada in Ottawa. "These recommendations are really centered on the patient and how they would want to be treated during complex cardiothoracic procedures."

Since 2011—when the guidelines were last updated—there has been a "remarkable increase" in minimally invasive procedures that has contributed to a favorable shift in blood product utilization and management, according to coauthor Victor A. Ferraris, MD, Ph.D., from the University of Kentucky College of Medicine in Lexington. As a result, the new practice guideline, which features 23 new or updated recommendations, marks the third iteration and the first in 10 years. "Blood management guidelines are a 'moving target' that change with the advent of new or modified evidence," he said.

It's important to note that in the previous guideline, the term "blood conservation" was used; the new recommendations yield to the broader term "patient blood management" (PBM).

PBM—developed in 2008—is a standard of care designed to optimize patient outcomes by minimizing blood loss, preventing anemia (a lower than normal number of red blood cells, resulting in a decreased capacity of the blood to carry oxygen to the body's tissues), and reducing the need for allogeneic blood transfusions (blood from donors rather than the patients themselves). This approach also places patients at the heart of

the decision-making process, ensuring that they are fully informed of the risks and benefits of their treatments and incorporating their values and choices into the treatment pathway. These major tenets of PBM are confirmed in the updated guideline.

"This guideline provides clinicians with a detailed assessment of patient blood management in the cardiac surgical patient—what has been proven to work and what has not—as well as the ability to incorporate these techniques with the most up-to-date evidence," said lead author Pierre R. Tibi, MD, from Yavapai Regional Medical Center in Prescott, Arizona.

Among the most important changes to the practice guideline is the adoption of PBM as a treatment of the whole patient, with blood considered a "liquid organ" or "vital entity" in taking care of the surgical patient, rather than focusing simply on when or when not to transfuse, explained Dr. Tibi.

Blood transfusions—which can be a critical and life-saving facet of cardiothoracic surgery patient care—are generally safe and have saved millions of lives, but they carry the risk of serious side effects, according to Dr. Tibi. Transfused blood has the potential to introduce disease and cause potent immunological reactions or even death; it does not work as well as a patient's own blood.

"Blood transfusions can be harmful to the body. Therefore, unless the proven benefit of blood transfusions outweighs the known risks, it is better to treat patients before, during, and after surgery in ways that decrease the risks of needing blood as much as possible for the best outcomes," he said.

These risks can be lessened through the use of PBM, helping ensure that a patient's own blood is adequate and transfusions are not needed. In fact, some hospital systems in the US have experienced as much as a

45% overall reduction in the rate of transfusions since starting PBM programs.

"Patient safety is well supported in this guideline, as it reduces the risks associated with blood transfusions," said Dr. Moffatt-Bruce.

For example, the guideline includes preoperative interventions related to identifying and managing anemia—a condition that is "extremely prevalent" in the cardiac surgical population, especially in elderly patients or those with other diseases. The most common cause of anemia is iron deficiency, occurring in up to 50% of anemic patients, according to the guideline. Historically, patients with preoperative anemia are more likely to require transfusions, so treating iron-deficiency anemia should be done before surgery. If successful, this can dramatically reduce the need for a blood transfusion.

The new guideline also suggests that in cardiac operations with cardiopulmonary bypass (CPB), the "well-established method" of red cell salvage via centrifugation may be routinely used. In this process, blood that the patient loses during the operation is collected, filtered, and washed by a machine before being reinfused into the patient. Red cell salvage is an important part of the blood conservation aspect of PBM.

Another new addition to the guideline is the recommendation to administer human albumin after cardiac surgery, which also has been shown to minimize the need for transfusion. This medicine typically is used to treat or prevent shock following serious injury, bleeding, or surgery by increasing the volume of blood plasma. Also, priming of the CPB circuit with a patient's own blood (known as "retrograde autologous priming") should be used wherever possible, according to the guideline. This "simple, safe, and effective process" has been shown to decrease transfusion rates, especially for cardiac operations that result in excessive blood loss.

"The guideline has been assembled by experts from different specialties and backgrounds who have reviewed the most recent data," said Dr. Moffatt-Bruce. "This guidance allows clinicians to standardize treatment with the knowledge that they are utilizing the best information while considering all aspects of patient care."

Dr. Tibi expects that some clinicians will be surprised by several of the recommendations, especially those that carry a "great deal of evidence" and likely will require changes to routine treatments for their patients undergoing cardiac surgery (e.g., the information related to the preoperative treatment of anemia and the assorted perfusion techniques).

For patients, it's important that their hospitals, surgeons, and care teams are aware of PBM and that they are utilizing the "best, most proven techniques available," Dr. Tibi advises. "Patients should certainly ask, 'What do you do so that my chances of receiving blood are minimized?'"

More information: Link to Guideline: www.annalsthoracicsurgery.org/ … (21)00556-7/fulltext

Provided by The Society of Thoracic Surgeons