No holes in a blood vessel, no bleeding. Unfortunately, we make holes that need to be compensated for in such operations. The experienced surgeon is aware of the innumerable details influencing coagulopathy, blood loss, and need for transfusion, which are unlikely to be controlled in the setting of a retrospective analysis. Even though the reported impact of AWB appears to be only slightly favorable, its safety and plausibility support its adoption. Randomized trials are needed to assess the impact of various strategies following the lead of this experienced team.

The ability to perform complex aortic surgeries without the need for allogenic transfusion is the ultimate blood conservation goal toward which we strive. This work advances the journey toward transfusion-free aortic surgery.

See Article page 1572.

Commentary: Autologous blood transfusion effects

Hitoshi Hirose, MD, PhD, and Ashley Jaekel, CRNP

It was with great pleasure to review the article from Geube and colleagues¹ from the Cleveland Clinic Foundation, entitled “Pre-Pump Autologous Blood Collection Is Associated With Reduced Intraoperative Transfusions in Aortic Surgery With Circulatory Arrest: A Propensity-Matched Analysis.” The authors evaluated the effect of autologous whole blood (AWB) use in the elective, complex aortic surgery requiring hypothermic circulatory arrest. According to their protocol, AWB was collected shortly after induction and central-line placement and then transfused after protamine was administered to the patient. The decision to use AWB was decided on by the surgeon and anesthesiologist. This

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CENTRAL MESSAGE

Autologous whole-blood transfusion can reduce intraoperative allogenic transfusion even in complex aortic surgery.

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retrospective study included 110 patients who received AWB over a 5-year period of time. Propensity matching was used to standardize the results, and authors were able to identify 95 well-matched pairs. The comparison between AWB versus non-AWB group was that the AWB group had a decreased number of transfusions including red blood cell (33% vs 49%, $P = .02$), plasma (35% vs 62%, $P = .0002$), platelets (72% vs 82%, $P = .09$), and cryoprecipitate (56% vs 63%, $P = .3$) intraoperatively.¹ Furthermore, despite 35 matched perioperative variables, the AWB group had longer

cardiac arrest time and longer cardiopulmonary bypass time, which indirectly indicates that the AWB group likely underwent a more complex surgery than non-AWB group. The benefits of AWB transfusions were greatly observed in the intraoperative period but dissipated postoperatively.

Their technique of AWB transfusion has potential benefits, including (1) that autologous blood does not have the impact from anticoagulation for cardiopulmonary bypass since the blood was corrected before heparin; (2) AWB contained well-balanced red blood cell and coagulation factors since it was not washed or processed like Cell Saver blood, which contains only washed red cells²; and (3) AWB does not have excessive inflammatory cytokines from cardiopulmonary bypass.³ I believe their results support the benefit of fresh, whole blood transfusions and potentially better hemostasis in the AWB group intraoperatively, although hemostasis data could be difficult to collect with meaningful objectives.

The authors looked at the postoperative complications, which were essentially identical between the 2 groups. The total transfusion requirement during hospital stay in the AWB group was actually quite similar to that of the non-AWB group. I believe there are positive effects of AWB, and that AWB has been more used in surgical practice over the 5-year span of the study. For further studies, postoperative transfusion criteria should be laid out for patients with AWB to analyze the effect on transfusion for the whole hospital stay. Hopefully, the use of AWB will continue to expand for selected elective aortic surgery.

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