

Efforts to Promote Appropriate Transfusions and Avoid Unnecessary Transfusions

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Brief Report

Patients, the question of whether medicine is more of a science or an art is still debated today. Although the precise definition of medicine as a science vs. an art is up to debate, the science of medicine can be defined as the "knowledge" gathered over time, and the art of medicine as the practitioner's "skill" in putting that knowledge and dexterity into effect. The process of collecting current, evidence-based knowledge and communicating it to doctors is challenging in and of itself. Another problem is hoping that professionals will absorb the knowledge and use it effectively in their patient care. Indeed, this conflict can be found in practically every field and facet of medicine (for example, heart surgery, which is a wonderful and fascinatingly complicated technique that necessitates considerable skill; and the transfusion of blood, one of the most common and rapidly increasing procedures among hospitalized patients in the United States). It can be argued that with the advancement of science, the role of the heart has been demoted from being the centre of intelligence, emotion, and sensation according to Aristotle to an organ responsible for the rather mundane task of continuously pumping blood. Nonetheless, the emergence of cardiovascular diseases as the primary cause of death for humans at the present time attests to the fact that there is nothing mundane about the heart.

As a result, heart surgeries like Coronary Artery Bypass Graft (CABG) surgery have evolved into actual medical miracles in which surgeons, anaesthesiologists, percussionists, and other team members use modern science, skills, and technology to bring patients back to life. Despite an increase in the number of patients with comorbidities and advanced age, the outcomes of CABG surgeries have dramatically improved over the last decade. According to a study of over 1.4 million CABG surgery patients' short-term results, mortality rates reduced from 2.4% to 1.9% between 2000 and 2009, while the risks of postoperative stroke, reoperation, and sternal wound infection all decreased dramatically. Atrial fibrillation, on the other hand, is more common. During the same study period, the rates of renal failure in these individuals continued to rise, reaching 21.1% and 3.6%, respectively. Cardiac surgery is one of the most common uses of allogeneic blood transfusions. In 2008, cardiac surgical services in the United States used 7.1% of all units of red blood cells (RBCs) and 12.1% of all units of platelets. Unfortunately, allogeneic blood transfusions have been presented as an independent risk factor in various patient populations, including those following CABG surgery, contributing to unfavourable outcomes. The most accurate predictor of the occurrence was RBC transfusion. In the postoperative period among the patients with atrial fibrillation Risk variables were investigated. Patients undergoing CABG surgery were studied, and it was discovered that postoperative transfusion was a major

independent risk factor for the development of cancer. Open of postoperative stroke in a dose-dependent manner (odds ratio 1.12). Finally, a reanalysis of data from 1,491 patients with acute coronary syndromes undergoing CABG surgery who took part in the Acute Catheterization and Urgent Intervention Triage strategy (ACUITY) trial found that transfusion of 4 U of RBCs is a strong and independent predictor of 1-year mortality, accounting for 24% of post-CABG mortality [1-5].

When the large variety of transfusion techniques in similar patients and procedures is examined, the documented dangers and unfavourable effects of allogeneic blood become concerning. The rate of transfusion of RBCs, fresh frozen plasma, and platelets showed significant inter institutional variability in a study of more than 80,000 patients undergoing on-pump CABG surgery at 408 U.S. hospitals performing at least 100 procedures in 2008, with the following respective ranges: 7.8% to 98.8%, 0% to 97.5%, and 0.4% to 90.4%. After adjusting for patient risks, three hospital variables emerged as major drivers of transfusion rate variation: location, academic level, and case volume. However, even when these hospital characteristics were combined, they only accounted for 11% of the transfusion variation, with another 20% attributable to case-mix differences between hospitals, leaving nearly 70% of the variation in transfusion rates in CABG surgery patients in U.S. hospitals unaccounted for. In another study, the use of allogeneic blood transfusion in women and men ranged from 72.5% to 100% and 49.7% to 100%, respectively, in nearly 25,000 patients undergoing CABG surgery in Michigan between 2003 and 2006, with 30 % of the variation in transfusion rates attributed to the hospitals.

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