
In renal transplant patients who received perioperative allogeneic blood transfusions, it was observed that there was a lower allograft rejection rate. This reduction in the immune system’s response, known as transfusion-related immunomodulation, is beneficial in transplant patients. However, a weakened immune system leaves a patient at greater risk of infection; in orthopaedic surgery, in which implants are often utilized, this could increase the risk for prosthetic infection. For this reason, perioperative blood transfusion has been investigated for increasing morbidity and mortality as well as for increasing infection risk.

Patients who sustain a hip fracture have high mortality and complication rates associated with their overall health risks. Things that can increase these risks must be recognized and managed appropriately. If perioperative blood transfusion is associated with a greater risk of complication, administration of a blood product must proceed with a heightened awareness for infection. The current authors retrospectively evaluated whether perioperative allogeneic blood transfusion was associated with changes in morbidity or complication rates in patients undergoing surgery for a hip fracture. The main outcome measures were mortality and superficial and deep wound infection.

Overall mortality in the current series is 28.2% (1007/3625), which is consistent with the literature. For the patients with complete data, 29.9% (1068/3571) had a perioperative blood transfusion. The mortality was greater from 120 days onward in the transfusion group; there was no difference in rates of superficial or deep infection.

Multiple studies have questioned the infection risks associated with transfusion, outside of the traditional concern with viral transmission. Koval et al. evaluated allogeneic transfusion and hip fracture patients with regard to postoperative urinary tract, respiratory, or wound infection. Infection developed in 21.6% of their patients, primarily in the urinary tract, with rates of 26.8% in the transfused patients and 14.9% in the nontransfused group. Carson et al. also evaluated patients who sustained a hip fracture for “serious” infections, defined as bacteremia, pneumonia, deep wound infection, septic arthritis or osteomyelitis. Fifty-eight percent (5524/9598) of their patients received a blood transfusion with “serious” infection postoperatively occurring in 5.2% (286/5457) of the transfusion patients and in 3.7% (151/4141) of the nontransfusion patients.

The orthopaedic world outside of the hip fracture population also shares the same concerns regarding blood transfusions. Agarwal et al. looked at 5366 trauma patients over a 2-year period, reporting that as the number of units of blood transfused increased so did the infection rate. The literature for the
elective arthroplasty patients is contradictory. Vamvakas et al. reported that
blood transfusion did not increase the incidence of postoperative infections in
total hip arthroplasty patients. Murphy et al. reported hip replacement patients
receiving autologous blood had a lower infection rate compared to patients
receiving homologous transfusion. Innerhofer et al. in 2005 found that white
blood cell–filtered allogeneic blood recipients had more infections than
autologous blood recipients and that the incidence of infection increased as the
number of transfused units of filtered allogeneic blood increased.

The decision to transfuse blood is multifactorial. The benefits are difficult to
dispute when a patient is in dire need. The risks in the geriatric hip fracture
population, which is comprised of patients with many comorbidities that increase
morbidity and mortality, are difficult to study. Although the current study found no
associated change in mortality or infection rates with blood transfusion, the
multiple other confounding patient factors make it difficult to identify situations
and patients who are more or less at risk. Therefore, the decision to transfuse is
difficult. Future investigations in this area will continue to be difficult and may
never provide definitive support.

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