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Preoperative Transfusion is Associated with Higher Risk of Mortality Among Patients Undergoing Surgery for Femoral Shaft Fracture

Introduction:

Patients may require preoperative blood transfusion which may carry associated complications. This study sought to assess the relationship between preoperative transfusion and 30-day mortality among patients undergoing surgical fixation (SF) for femoral shaft fractures.

Methods:

A retrospective cohort study was performed using the NSQIP database involving cases of SF for femoral shaft fractures that occurred between 2012 and 2021. Patients 18 years and older were split into two cohorts depending on whether or not they received a preoperative transfusion ≥ 1 unit of whole or packed red blood cells in the 72-hour period prior to surgery. Potential confounders included basic demographics, health status, and procedure characteristics. Chi square tests identified cohort differences and multivariable regression adjusted for confounders to determine the impact of preoperative transfusion on 30-day mortality.

Results:

Among 6,812 cases of ORIF for femoral shaft fracture, 373 (5.48%) had preoperative transfusion. In both cohorts, the highest proportion of patients had age 80-89 years, White race, non-Hispanic ethnicity, female sex, normal BMI, no chronic immunosuppression, no diabetes, no smoking, ASA classification of 3, independent function status prior to surgery, and elective case designation. Also, most patients presented from home and received general anesthesia [Table 1].

On multivariable regression analysis adjusting for potential confounders, patients with versus without preoperative transfusion had 1.86 times higher odds (95% CI 1.22 to 2.80; $p=0.003$) of 30-day mortality following SF for femoral shaft fracture [Table 2].

Conclusion:

Patients who received preoperative transfusions had nearly double the risk of 30-day mortality following SF for femoral shaft fracture. Further studies into medical management may help to reduce mortality, especially among patients who must receive a transfusion during the preoperative period.