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Preoperative Transfusion is Associated with Longer Hospital Length of Stay Among Patients Undergoing Surgery for Femoral Shaft Fracture

Introduction:

Preoperative blood transfusion may aid surgical optimization but carries risks, including hospital-related complications and increased healthcare costs due to prolonged hospitalization. This study evaluates the association between preoperative transfusion and hospital length of stay in patients undergoing open reduction and internal fixation (ORIF) for femoral shaft fractures.

Method:

A retrospective cohort study using the National Surgical Quality Improvement Program (NSQIP) database (2012-2021) included patients aged ≥ 18 years undergoing ORIF for femoral shaft fractures. The primary exposure was preoperative transfusion ≥ 1 unit of whole or packed red blood cells within the 72-hour preoperative period. Patients were divided into two cohorts based on preoperative transfusion status. Confounders included demographics, baseline health, and procedure characteristics. Univariate analyses employing chi-square testing were used to identify differences between cohorts. Log-linear regression analysis adjusting for potential confounders was used to identify the association of preoperative transfusion and hospital length of stay.

Result:

Among 6,812 ORIF cases, 373 (5.48%) had preoperative transfusion. In both cohorts, most patients were aged 80-89 years, White, non-Hispanic, female, normal BMI, no chronic immunosuppression, no diabetes, no smoking, ASA classification of 3, independent function status prior to surgery, elective case designation, presented from home, and received general anesthesia [Table 1]. Log-linear regression analysis showed that preoperative transfusion was associated with 1.31 (95% CI 1.22 to 1.41; $p < 0.001$) times longer hospital stay [Table 2].

Conclusion:

Patients with preoperative transfusion had a longer hospital stay following ORIF for femoral shaft fracture. Further studies into risk stratification and medical management may help to reduce postoperative length of stay, especially among patients who require a preoperative transfusion.