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## Preoperative Transfusion is Associated with Higher Risk of Bleeding Transfusion for Patients Undergoing Total Shoulder Arthroplasty

Introduction:
Medical optimization prior to surgery may involve preoperative blood transfusion, which could have associated complications. This study assesses the relationship between preoperative blood transfusion and the need for bleeding transfusions among patients who underwent total shoulder arthroplasty (TSA).
Methods:
A retrospective cohort study was performed using the National Surgical Quality Improvement Program (NSQIP) database of TSA cases occurring between 2012-2021. Inclusion criteria was age □18 years. Preoperative transfusion was defined as transfusion of □1 unit of whole or packed red blood cells within 72 hours prior to operative start time. Patients were divided into two cohorts based on occurrence of preoperative transfusion. Bleeding transfusion was defined as transfusion of □1 unit within 72 hours after operative start time, including intraoperatively. Potential confounders included basic demographics, baseline health status, and procedure characteristics. Univariate analyses were performed to assess differences between the two cohorts. Multivariable regression analysis, with adjustment for confounding, was performed to assess the relationship between preoperative transfusion and bleeding transfusion.
Results:
38,260 patients underwent TSA, of which 87 (0.2%) received preoperative transfusion. The highest proportion of patients in both cohorts had age 70-79 years, female sex, White race, ASA class 3, and obesity [Table 1]. On multivariable regression analysis, patients with preoperative transfusion had 7.50 times higher odds (95% CI 4.21 to 13.05; $p<0.001$) of bleeding transfusion occurrence following TSA [Table 2].
Conclusion:
Patients with preoperative blood transfusion who undergo TSA have a higher risk of intra-/postoperative bleeding transfusion. Further studies characterizing reasons for requiring preoperative transfusion as well as supportive strategies during perioperative period may optimize patient outcomes.