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Adam Wolfert Advisor(s): Danielle Casagrande M.D.

Co-author(s): Vinay Bijoor, Michael Yeroushalmi, Peter K. Twining, David H. Mai, Vincent Ruggiero, Vinny Craveiro, Paul Pipitone, Colin Woon, Barbara Freeman, Daniel Caligiuri

Preoperative Transfusion May Predict Prolonged Hospitalization for Patients Undergoing Total Shoulder Arthroplasty

Medical optimization prior to surgery may involve preoperative blood transfusion, which may have associated complications. This study assessed the relationship between preoperative blood transfusion and surgical admission length of stay (LOS) among total shoulder arthroplasty (TSA) patients.

Methods:

A retrospective cohort study was performed using the National Surgical Quality Improvement Program (NSQIP) database of TSA cases occurring between 2012-2021. Age criteria was >18 years. Preoperative transfusion, the primary exposure, 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. The primary outcome, LOS, was measured in days. Potential confounders included basic demographics (age, sex, race, ethnicity), baseline health status (functional status, ASA classification, BMI, smoking status within one year, history of diabetes), and procedure characteristics (admission origin, surgical setting, anesthesia modality, emergency procedure designation). Univariate analyses and complete case analysis using multivariable regression were performed to evaluate the relationship between preoperative transfusion and LOS.

Results:

During the study period, 38,260 patients underwent TSA, of which 87 (0.2%) received preoperative transfusion. The highest proportion of patients were 70-79 years, female, White, non-Hispanic, independent functional status, ASA class 3, obesity, no smoking history, and no diabetes. On multivariable regression analysis patients with preoperative transfusion had longer LOS (OR 2.38, 95% CI 2.10 to 2.69; $p<0.001$) following TSA.

Conclusion:

For patients undergoing TSA, preoperative transfusion is associated with prolonged hospital length of stay. Further studies characterizing reasons for requiring preoperative transfusion and supportive strategies during perioperative period, may optimize patient outcomes.