

Dylan Combs, MS3

University of Hawaii John A. Burns School of Medicine

REDUCING TRANSFUSION IN HIP ARTHROPLASTY: TRANEXAMIC ACID DIMINISHES INFLUENCE OF ANESTHESIA ADMINISTERED

Abstract

Background: The risk of transfusion following total hip arthroplasty (THA) continues to be problematic. The best choice of anesthesia (spinal vs general) and impact of tranexamic acid (TXA) use in reducing transfusions following surgery remain unclear. Therefore, the purpose of this study was to compare rates of blood transfusion following THA via the anterior approach using three different anesthesia protocols with and without TXA.

Methods and Materials: This retrospective review included 1399 patients (1659 hips), receiving spinal anesthesia (SA) without (248 patients) and with TXA (77 patients), general anesthesia (GA) without (151 patients) and with TXA (171) and general anesthesia with paravertebral block (GA-PVB) and TXA (748 patients). All procedures were performed by a single surgeon. Chi-Squared tests and logistic regression were performed to evaluate the rate and risks of transfusion between groups.

Results: Without TXA, transfusion rate with GA (24.5%) was higher than SA (13.4%) ($p=0.004$). With TXA, there was no difference in transfusion rates between GA (4.6%), SA (3.9%) or GA-PVB (4.0%). The multivariable regression revealed bilateral (Odds Ratio (OR): 6.473; $p<0.001$), female (OR: 2.046; $p=0.004$), age (OR: 1.028; $p=0.012$) and pre-operative anemia (OR: 2.604; $p<0.001$) as increasing the risk of transfusion while use of TXA (OR: 0.168; $p<0.001$) significantly reduced transfusion risk.

Conclusion: The use of TXA during THA via the anterior approach removed the influence of anesthesia type regarding risk of transfusion. The use of TXA may reverse presumed disadvantages of GA alone, potentially facilitating rapid discharge following surgery.

Keywords: Regional Nerve Block; Total Hip Replacement; Blood Management; Bilateral