Impact of Tranexamic Acid on Blood Loss in Acetabular Fracture Repair Via Posterior Approach

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Purpose: Acetabular fractures are challenging yet common injuries. Several surgical techniques exist, with the posterior approach being used for a majority of these fractures. Acetabular injuries give opportunity for significant perioperative blood loss, prompting investigation into the use of tranexamic acid (TXA) to minimize bleeding complications. The purpose of this study is to evaluate the impact of TXA on total blood loss (TBL) and transfusions in patients undergoing acetabular fracture repair via the posterior approach.

Methods: A retrospective review was conducted at a Level I trauma center of patients who underwent acetabular fracture repair through a posterior approach between 2010 and 2023. Patient demographics, surgical details, and perioperative data, including TBL and transfusion requirements, were extracted from electronic medical records. Patients were stratified into 2 groups based on TXA administration perioperatively. Statistical analyses were performed to evaluate the association between TXA use and bleeding complications.

Results: A total of 633 patients (67% male) with an average age of 39 were identified who met study criteria, of whom 194 (31%) received TXA during surgery. Demographic characteristics, including age, gender, race, and body mass index, showed no significant difference between groups. There were significantly more hypertensive patients (33% vs 17%; P = 0.0077), intravenous drug users (7% vs 4%; P = 0.0494), and alcohol users (33% vs 25%; P = 0.0051) in the TXA group. Patients who received TXA had lower estimated blood loss (EBL) (468 mL vs 544 mL; P = 0.0195), and a shorter length of hospitalization (6.4 days vs 9.1 days; P<0.0001). TXA led to fewer units of blood transfused during surgery (0.8 vs 1.4; P = 0.0174), although the number of patients who received a transfusion was not significantly different (16% vs 15%; 0.9481). Hemoglobin and hematocrit at 24 and 48 hours were not significantly different between groups.

Conclusion: The use of TXA during repair of acetabular fractures through a posterior approach is associated with fewer units of blood transfused, shorter hospitalization, and lower EBL. The reduction in EBL, transfused units, and hospitalization may lead to improved patient outcomes.