

Administration of Tranexamic Acid Improves Long-Term Outcomes in Total Knee Arthroplasty ◇

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Introduction: Allogenic blood transfusion in total knee arthroplasty (TKA) is associated with increased incidence of morbidity, including periprosthetic joint infection (PJI), revision surgery, and irrigation and debridement (I&D). Tranexamic acid (TXA) reduces the rate of blood transfusions, but there has been limited evidence demonstrating improved outcomes in TKA resulting from decreased transfusion related complications. The objective of this study was to determine if TXA improves long-term outcomes and minimizes adverse events.

Methods: A multicenter retrospective matched cohort study was completed comparing 4,905 patients receiving TXA after a TKA as compared to 22,174 patients that did not receive TXA. Inclusion criteria included patients receiving a TKA for degenerative arthritis. The primary outcome was a diagnosis of PJI within two years of the primary TKA. Secondary outcomes included revision surgery and I&D within two years of surgery. Adverse events included readmission within 90 days postoperative transfusion, or deep venous thrombosis (DVT) within 90 days of the primary TKA. Adjusted odds ratios were determined using multivariate analysis controlling for age, gender, thromboembolic chemophylaxis, and Charlson comorbidity index (CCMI).

Results: 27,079 cases of TKA met inclusion criteria. 18% (n=4,905) received TXA. Multivariate analysis demonstrated that TXA administration resulted in an approximate 50% decreased incidence of PJI within two years (OR 0.47; p<0.0001). TXA administration improved secondary outcomes, with a decreased incidence of revision surgery at two years (OR 0.29; p<0.0001) and I&D (OR 0.10; p<0.0001) as compared to patients that did not receive TXA. Patients who received TXA also had decreased incidences of 90-day hospital readmission (OR 0.85; p=0.0001) and DVT (OR 0.45; p=0.0003). Consistent with previous studies, a reduction in transfusion rates was observed (OR 0.13; p<0.0001).

Conclusions: Administration of TXA in TKA resulted in decreased rates of PJI, revision surgery, I&D, and 90-day readmission, demonstrating that its use improves long-term outcomes.

◇ The FDA has not approved tranexamic acid for use in orthopaedics.