

The Effect of Multiple Doses of Intravenous Tranexamic Acid on Blood Transfusions, Complications, and Cost in Fragility Hip Fractures

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Purpose: Fragility fractures are associated with significant blood loss and poor outcomes. Studies have demonstrated that intravenous tranexamic acid (TXA) can improve outcomes. However, few studies have investigated the utility of multiple TXA doses. The purpose of this study was to evaluate differences in transfusions, complications, and cost for patients treated for a fragility hip fracture that received no TXA, a single dose of TXA, or multiple doses of TXA.

Methods: Patients 50 years and older who underwent surgical treatment for a fragility fracture of the neck, intertrochanteric, or subtrochanteric aspect of the femur between January 1, 2018, and January 1, 2024, were evaluated. Patients were excluded if they sustained bilateral hip fractures, high energy injuries, polytrauma, or a periprosthetic hip fracture. Patients were grouped by TXA utilization. Regression and χ^2 analyses were used to determine the influence of TXA on outcomes.

Results: This study included 1691 patients (71.5% female, age 80.7 ± 11.1); 551 received a single dose of TXA and 508 received multiple doses. There were no differences in medical comorbidities or demographics among the groups. There was a statistically significant difference in transfusion rates between patients who received TXA and those who did not: 31.8% no TXA, 15.9% a single dose, 14.7% multidose ($p < 0.001$). There were no differences in 30-day emergency department visits ($p = 0.545$), deaths ($p = 0.432$), or venous thromboembolism ($p = 0.154$). Logistic regression indicated a 245% ($p < 0.001$, 95%CI: 180% to 320%) increased likelihood of a transfusion when no TXA was given compared to a single dose. Multiple doses further reduced transfusion rates by 5% beyond a single dose, but this was not significant ($p = 0.451$). The administration of TXA, single or multidose, was associated with a \$9900 cost savings per hospital stay compared to patients who did not receive TXA ($p = 0.028$).

Conclusion: The use of TXA in the surgical treatment of fragility hip fractures reduces transfusion rates and costs compared to no TXA use with similar complication rates. This study does not show a statistically significant additional benefit for multiple doses of TXA over the course of treatment.