Comparison of the Effect of Intravenous and Locally Injected Tranexamic Acid on Blood Transfusion and Complications in Fragility Hip Fractures

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Purpose: Fragility hip fractures are associated with significant blood loss, potentially increasing perioperative complications and need for blood transfusions. Studies have demonstrated the utility of tranexamic acid (TXA) in a fragility fracture population; however, there has been no comparison of locally injected (LI) TXA administered at the time of wound closure and intravenous (IV) TXA. Therefore, the purpose of this study was to evaluate differences in transfusion and complication rates in patients with a fragility hip fracture who received either LI TXA or IV TXA.

Methods: Records for patients ≥50 years old who underwent surgical treatment for a fragility hip fracture (fracture occurring from a fall from standing height or less) of the neck, intertrochanteric, or subtrochanteric aspect of the femur between March 1, 2018 and April 1, 2022 were evaluated. Patients were excluded if they sustained a: bilateral hip fracture, hip fracture as a part of a polytrauma, or periprosthetic hip fracture. Patients who received either IV TXA or LI TXA were compared to each other as well as to a historical control group who received no TXA. Chi-squared tests were used to assess differences among groups for both complications and blood transfusions. Logistic regression were also used to determine the association with TXA and transfusion rates.

Results: 746 patients were included in this study (258 IV TXA, 252 LI TXA, 236 controls [no TXA]). A significant difference in transfusions among the 3 groups was found; 43% of the control group, 33% of the LI TXA group, and 21% of the IV TXA group required blood transfusion ($P < 0.001$). There were no differences in 30-day emergency department visits ($P = 0.584$), deaths ($P = 0.296$), or venous thromboembolism ($P = 0.853$). The IV TXA group had the lowest 30-day readmission rate ($P = 0.001$). Logistic regression indicated patients receiving IV TXA were 65% less likely than the control group ($P < 0.001$, odds ratio [OR]: 0.35, 95% confidence interval [CI]: 0.24-0.52), and 48% less likely than the LI TXA group ($P = 0.017$, OR: 0.52, 95% CI: 0.35-0.78) to require a transfusion.

Conclusion: Patients receiving IV TXA required fewer transfusions and were less likely to be readmitted than the other study groups. TXA was not associated with any increased risk of complications. Therefore, when not contraindicated, IV TXA seems to be a safe and effective means of reducing postoperative blood transfusion in patients with fragility hip fractures.