Outcomes of Tranexamic Acid for Acute Gastrointestinal Bleeding in the Emergency Department

Minahil Cheema, BS[1], Aamna Cheema, BS[1], Nathaniel Luttrell[2], Benjamin Wu[2], Shirin Haan[2], Vivian Cremeans[2], Rahil Haider[2], Samantha Camp, BA[1], Jennifer Walker, MD[5,6], Ali Pourmand, MD, MPH[3,7], Quincy K. Tran, MD, PhD[2,4,8]

1. University of Maryland School of Medicine, Baltimore, MD 21201, United States
2. Research Associate Program in Emergency Medicine & Critical Care, Department of Emergency Medicine, University of Maryland School of Medicine, Baltimore, MD 21201 United States
3. The George Washington School of Medicine and Health Sciences, Washington, D.C. , United States
4. Department of Emergency Medicine, University of Maryland School of Medicine, Baltimore, MD 21201, United States
5. Department of Emergency Medicine, Baylor Scott and White All Saints Medical Center, Fort Worth, TX 76104, United States
6. Department of Emergency Medicine, Burnett School of Medicine at Texas Christian University, Fort Worth, TX 76104, United States
7. Department of Emergency Medicine, The George Washington University School of Medicine and Health Sciences, Washington, D.C. 20037, United States
8. Program In Trauma, The R Adam Cowley Shock Trauma Center, University of Maryland School of Medicine, Baltimore, MD 21201, United States

Background

Acute gastrointestinal bleeding (GIB) is a life-threatening emergency. Tranexamic acid (TXA) is a well-established hemostatic adjunct in trauma, but its role in GIB remains uncertain. A large randomized trial found no mortality benefit and raised concern for venous thromboembolism (VTE), while subsequent evidence remains mixed. We hypothesized that ED TXA would not improve 30-day mortality compared with no TXA and evaluated VTE, blood transfusion, and endoscopic bleeding-control procedures as secondary outcomes.

Methods

We conducted a retrospective cohort study using the TriNetX Global Collaborative Network of adults (age ≥18 years) presenting to the ED with acute GIB from Jan 2016-Jan 2026. Patients receiving injectable TXA on the index date were compared with those not receiving TXA; major competing TXA indications and selected thrombotic diagnoses were excluded. Propensity score matching on 73 characteristics, including demographics, comorbidities, medications, vital signs, and laboratory values, generated 1:1 matched cohorts. Outcomes from days 1-30 were mortality, VTE, blood transfusion, and endoscopic bleeding-control procedures. Risk and Kaplan-Meier analyses compared matched cohorts.

Results
After matching, 11,437 patients were included in each cohort (mean age 62.8±16.0 vs 62.3±16.4 years). Thirty-day mortality was similar with TXA versus no TXA (3.9% vs 3.6%; risk difference [RD] 0.003, 95% CI -0.002 to 0.007; p=0.313; HR 1.06, 95% CI 0.93-1.21). VTE (0.7% vs 0.6%; RD 0.000, 95% CI -0.002 to 0.002; p=0.869) and blood transfusion (5.2% vs 4.8%; RD 0.004, 95% CI -0.002 to 0.009; p=0.181) did not differ significantly. Endoscopic bleeding-control procedures were less frequent with TXA (0.4% vs 0.8%; RD -0.004, 95% CI -0.006 to -0.002; p=0.001; HR 0.55, 95% CI 0.39-0.77).

Conclusion
In this large propensity-matched cohort, ED TXA was not associated with differences in 30-day mortality, VTE, or blood transfusion but was associated with fewer endoscopic bleeding-control procedures. These observational findings suggest a potential hemostatic benefit without an observed increase in VTE and warrant prospective evaluation.