Tranexamic Acid Administered at Time of Hospital Admission Does Not Decrease Transfusion Rates or Blood Loss for Extracapsular Hip Fractures: A Double-Blinded Randomized Clinical Trial

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Purpose: Our objective was to determine the effect of tranexamic acid (TXA) administered on hospital presentation on transfusion rates, estimated blood loss, and perioperative complications in patients with extracapsular hip fractures.

Methods: A prospective, double-blinded, randomized controlled trial was performed from 2018 to 2022. 128 patients with AO/OTA 31-A fractures were included—64 patients were randomized to intravenous (IV) TXA and 64 patients to IV normal saline (NS). Study drug was administered in the emergency department at time of presentation according to protocol previously published in the CRASH-2 trial (1-g bolus over 10 minutes followed by a 1-g infusion over 8 h). The mean age was 79 years, 70% were female, and mean body mass index was 26 kg/m². The primary outcome was the rate of red blood cell (RBC) transfusion hospital days 1 through 4. Secondary outcomes included estimated blood loss, as determined by hemoglobin balance method, and complications including venous thromboembolic events (VTEs), stroke, myocardial infarction (MI), all-cause 90-day readmissions, and all-cause mortality. Patients were followed for 6 months following the index surgery. Continuous variables were analyzed using Student t-test and categorical variables using chi-squared test.

Results: There was no difference in the rate of RBC transfusion between treatment arms between hospital days 1-4 (27% in TXA arm vs 31% in placebo arm, P = 0.65). Patients randomized to NS who underwent transfusion required a mean of 2.30 units compared to 1.94 in the TXA cohort (P = 0.55). There was no difference in the estimated blood loss as calculated by the hemoglobin balance method between hospital days 1-4. There was no difference in the incidence of postoperative complications including VTEs, stroke, MI, 90-day readmission, or death.

Conclusion: The current study did not demonstrate a decrease in the need for RBC transfusion when administering TXA at time of presentation for patients with extracapsular hip fractures. There was no increased rate of complications in the TXA cohort, suggesting early administration is safe. The results of the current study do not support the use of preoperative TXA for reducing "hidden" blood loss for geriatric patients with extracapsular hip fractures.