Paper - Annual Meeting

Paper Session: Geriatrics

Expanded Use of Tranexamic Acid Is Safe and Decreases Transfusion Rates in Patients With Geriatric Hip Fractures

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Purpose: Our objective was to determine the effect of a standardized tranexamic acid (TXA) administration protocol on red blood cell transfusions and adverse events in fragility hip fracture patients.

Methods: All patients admitted to the fragility hip fracture service from April 1, 2019 to September 30, 2019 were prospectively screened for inclusion in the study. Patients with medical conditions precluding the use of TXA were deemed ineligible: allergy to TXA, creatinine clearance <30 mL/min, active malignancy, vascular event in the past year (myocardial infarction, coronary stenting, stroke, peripheral vascular stenting, venous thromboembolism), anticoagulant use, and/or fracture >48 hours prior to presentation. Eligible patients received a total of 4 IV doses of TXA: 1 g over 10 minutes followed by infusion of 1 g over 8 hours at admission, and 1 g administered at surgical incision followed by 1 g 3 hours later. Ineligible patients received no TXA. Demographic data, hemoglobin values, transfusions given, and timing of transfusion were recorded. Transfusion threshold was <7 g/dL or as determined by established blood management protocol. Major adverse events, including stroke, myocardial infarction, pulmonary embolus, and deep vein thrombosis were tracked in-hospital and for 3 months post-discharge. Minor adverse events known to be associated with TXA, such as headache, abdominal pain, nasal symptoms, nausea, vomiting, and diarrhea, were tracked in-hospital.

Results: 209 geriatric hip fractures were treated operatively during this 6-month period. Procedures included intramedullary nail (46%), hemiarthroplasty (34%), sliding hip screw (9%), closed reduction and percutaneous pinning (8%), and total hip arthroplasty (3%). 48% (n = 102) of patients met eligibility criteria to receive TXA. The 2 most common exclusion criteria were renal impairment (20%) and anticoagulant use (15%). 70% of eligible patients received all 4 doses of TXA. Patients who received TXA had a significantly lower transfusion rate than those who did not receive TXA (9.8% vs 29.4%, $P < 0.001$). Patients who received TXA received their final transfusion sooner in the postoperative period compared to those who did not receive TXA (0.9 vs 2.0 days postoperatively, $P = 0.009$). There were no significant differences in the number of major (0.85% vs 1.12%, $P = 0.677$) or minor adverse events (13% vs 9%, $P = 0.447$) between the 2 groups.

Conclusion: The use of a standardized TXA protocol of 4 doses significantly decreases transfusion rates in patients undergoing operative intervention for fragility hip fracture without an increase in the rate of major or minor adverse events. This study advances our understanding of the safety and efficacy of TXA in fragility hip fracture patients.