

Child Health Research Institute



University of Nebraska Medical Center

DigitalCommons@UNMC

Child Health Research Institute Pediatric
Research Forum

Children's Hospital & Medical Center

5-5-2022

Assessing the Safety and Efficacy of Tranexamic Acid Usage in Osteogenesis Imperfecta Patients

Vincent Eaton

Makayla Schissel

Elizabeth Strudthoff

Maegen Wallace

Follow this and additional works at: https://digitalcommons.unmc.edu/chri_forum

Assessing the Safety and Efficacy of Tranexamic Acid Usage in Osteogenesis Imperfecta Patients

Vincent Eaton¹, Makayla Schissel², Elizabeth Strudthoff^{2,3}, and Maegen Wallace MD^{2,3}

Affiliations: ¹Creighton University School of Medicine, ²University of Nebraska Medical Center, ³Children's Hospital and Medical Center, Omaha, NE.

Background: This study aims to evaluate the safety and efficacy of tranexamic acid (TXA) usage to reduce blood loss in surgeries in children with Osteogenesis Imperfecta (OI). We want to assess the potential benefits, risks, and complications involved in the usage of TXA in this pediatric orthopedic population.

Significance of Problem: Due to increased fracture burden and bone deformity caused by OI, patients tend to have numerous operations throughout their life. In addition to these skeletal manifestations, there is a potential increase in susceptibility to bleeding due to the increased frequency of orthopedic procedures. Increased blood loss during orthopedic procedures warrants investigation into potential ways to mitigate any risk of excessive intraoperative blood loss.

Hypothesis, Problem, or Question: Our hypothesis is that there will be a reduction in intraoperative blood loss and perioperative transfusion rate between OI patients that received TXA intraoperatively during femoral rodding procedures versus those who did not receive the intervention.

Experimental Design: TXA-receiving patients (cases) were matched 1:1 with non-TXA receiving controls on the following criteria: age within 2 years, bone category, and OI Type. Descriptive statistics were used to summarize the data. Fisher's Exact Test was performed to compare transfusion status between groups. A Wilcoxon Rank Sum test was performed to assess differences between the groups in days of stay, length of surgery, and EBL. All analyses were conducted using SAS version 9.4. $P < 0.05$ was considered statistically significant.

Results/Data: Our TXA-receiving population of 30 patients consisted of 11 females and 19 males. 1 patient was OI type I, 13 were OI type III, 14 were OI type IV, and 2 were categorized as other (not one of the four most common types). We found a significant difference in transfusion status ($p = 0.02$), with no TXA patients requiring a transfusion compared to 20% of the control cases. There is also a significant difference in median EBL ($p = 0.0004$) between groups, with TXA patients having a lower intraoperative EBL (20 mL versus 62.5 mL). There was also a difference in median days of post-operative stay between TXA receiving and non-TXA receiving patients ($p = 0.001$; 2.6 days versus 4 days).

Conclusions: Our study concluded that the use of TXA in this patient population is associated with a lower rate of perioperative transfusions and intraoperative blood loss. These results support the standard usage of TXA in these patients to reduce intraoperative blood loss.