

## **Safety and Efficacy of Tranexamic Acid for Patients having Hip, Knee, or Shoulder Arthroplasty**

**Purpose:** Several studies have indicated that Tranexamic acid (TXA) may reduce perioperative blood loss and allogenic blood transfusions in patients undergoing hip and knee arthroplasty. Currently there is no consensus regarding the route, dosage, and timing of administration of TXA in this patient population. The purpose of this study was to evaluate the safety and efficacy of Tranexamic acid during elective hip, knee or shoulder arthroplasty in the community hospital setting utilizing a standardized protocol.

**Methods:** We retrospectively reviewed the medical records of 78 patients involving two surgeons from June 2013 to September 2013 prior to implementation of the study compared to 108 patients from October 2013 to March 2014 who received the two dose protocol. We compared changes in hemoglobin, transfusion rates, length of stay, and complications between the two groups.

**Results:** We found a reduction in perioperative hemoglobin decrease from 35 g/L to 26 g/L, a reduction in the transfusion rate from 17.9% to 5.6%, and a decrease in total units of packed red blood cells (pRBCs) from 85 to 25 for all arthroplasties. Mean hemoglobin upon discharge improved from 9.6 g/dL to 10.6 g/dL. Length of stay decreased from 4.7 to 4.2 days post protocol implementation. One morbidly obese patient who received TXA demonstrated a pulmonary embolus after a total knee arthroplasty requiring readmission and anticoagulant therapy. There were no other complications noted.

**Conclusion:** Two intravenous doses (one gram at induction, second gram at tourniquet release or skin closure) of intraoperative TXA demonstrated significant reduction in transfusion rates in patients having elective hip, knee or shoulder arthroplasty compared to a similar cohort of patients who did not receive the medication. Length of stay did not significantly change in this patient population suggesting other factors both medical and non-medical as a reason for prolonged hospitalization. This retrospective analysis demonstrates an acceptable efficacy and safety profile of TXA. We recommend its routine use for patients undergoing elective joint arthroplasty unless contraindicated.