TIMING OF IV TRANEXAMIC ACID ADMINISTRATION AND ITS EFFECT ON POSTOPERATIVE HEMOGLOBIN AND TRANSFUSION RATE DURING TOTAL KNEE ARTHROPLASTY

Presenter: Scottie Singh, DO
Authors: Nathaniel J. Thomas, DO; Scottie Singh, DO; Paul Drouillard, DO; Ryan Perry, DO; Nick Higinbotham, DO

Purpose: The benefits of tranexamic acid use in primary joint replacement are well documented. While the use of tranexamic acid in primary joint replacement is becoming more common, literature on timing of administration is lacking. The purpose of this study was to examine the timing of administration of IV tranexamic acid and its effect on postoperative blood loss, and transfusion rate.

Methods: This retrospective cohort study was performed on patients who underwent elective unilateral total knee arthroplasty between 2015 and 2016 after failing conservative therapy. Patient hemoglobin levels were obtained from preoperative admission testing labs within one week of surgery, and postoperative hemoglobin levels were obtained from early morning labs on postoperative day one. Surgical blood loss was recorded at the end of each case and measured through laparotomy sponge counts as well as blood remaining in suction canisters. Patients were split into 3 groups: one that did not receive TXA, one that received TXA after implantation with tourniquet still inflated, and one that received TXA before inflation of the tourniquet.

Results: This study included a total of 60 patients. Group 1 had 20 patients with a mean age of 60.6 years. Group 2 had 20 patients with a mean age of 59.21 years. Group 3 had 20 patients with a mean age of 68.65 years. The means for preoperative Hb levels for the three groups were 13.22, 13.5, and 13.42 respectively. Postoperative Hb levels were 10.5, 11.5, and 11.155 respectively. Mean differences between preoperative and postoperative Hb levels per group were 2.67, 1.99, and 2.26. Surgical blood loss was averaged at 48.75, 126.25, and 137.5.

Conclusion: The results of this study exhibit similar results when comparing blood loss between the group one control, and groups two and three using tranexamic acid. While demonstrating the use of tranexamic acid in total knee replacement decreased blood loss when compared with the control group, significant difference in blood loss was not noted between groups two and three comparing timing of perioperative administration.