Extended Postoperative Oral Tranexamic Acid in Primary Total Joint Arthroplasty

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INTRODUCTION: Extended oral tranexamic acid (TXA) recently demonstrated improvement in patient outcomes without increased risk in a low-risk cohort of patients undergoing primary total knee arthroplasty (pTKA), at an outpatient surgery center. We expanded the use of this medication to all primary total joint arthroplasty (pTJA), including primary total hip arthroplasty (pTHA), undergoing reconstruction at either an outpatient surgery center or inpatient hospital setting to examine the impact on postoperative outcomes in a more generalizable population.

METHODS: All data was collected retrospectively via electronic medical record review. All patients received the standard 1 g intravenous TXA dose prior to incision and again at the time of closure. Those meeting inclusion criteria then received an additional 1.95 g oral TXA dose after ambulating the day of surgery and continued for three days postoperatively. Patients were excluded if they had a history of venous thromboembolism (DVT), active cancer diagnosis, or were taking non-aspirin anticoagulation at baseline. We also excluded revisions, bilateral surgery, or less than 90 days of follow up when conducting the analysis. A total of 69 patients (31 pTKA and 38 pTHA) in the treatment group underwent propensity score matching based on relevant covariates to 159 patients (82 pTKA, 77 pTHA) within the historical cohort of patients who did not receive oral TXA. The primary outcome evaluated was the delta PROMs (HOOS JR/KOOS JR) between preoperative and 6 weeks postoperative. Secondary outcomes included unplanned emergency room visits, reoperations, infection, or DVT within the first 90 days postoperatively. Statistical analysis was conducted on Stata 13.0. Based on a priori power analysis, 81 total patients would allow us to detect an effect size f^2= 0.10 between the primary response variable with a 80% power and alpha error rate of 5%.

RESULTS:

On t-test analysis, there is a statistically significant difference in 6 week delta PROMs (HOOS JR/KOOS JR) between the oral TXA group to the historical cohort (7.1 points higher in oral TXA, $p = 0.005$). There remains a statistically significant difference in 6 weeks delta PROMs (HOOS JR/KOOS JR) after propensity score matching (7.3 points higher in oral TXA, $p = 0.001$). In subgroup propensity score matching analysis with pTKA and pTHA separated into two groups, the mean difference in PROMs was higher for oral TXA in the pTHA subgroup (HOOS JR 11.4 points $p = 0.002$), but was not statistically significant in the pTKA subgroup (KOOS JR 5.5 points higher in the oral TXA, $p = 0.22$). There was no statistical difference in any of the secondary outcomes (p-value > 0.05).

DISCUSSION AND CONCLUSION: A three-day course of oral TXA after pTJA can improve postoperative PROMs at 6 weeks. In our population, there appears to be no increased risk of complications with oral TXA use. The use of oral TXA in the postoperative management of TJA patients demonstrates improved early patient reported outcomes and merits further investigation to a broader population at this time.