Tranexamic Acid Associated with Less Wound Complications in Ankle and Hindfoot Surgery Level III, Retrospective Cohort Study, Moore AD, Smith BR, O'Leary RJ, Hoch CP, Gross CE, Scott DJ. *J Am Acad Orthop Surg*. 2022;30(16):789-797.

DOI: 10.5435/JAAOS-D-21-01064

Level of Evidence: 3

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Tranexamic acid (TXA) is a synthetic anti-fibrinolytic drug that stabilizes clots and reduces active bleeding. In the orthopedic world, it has been frequently used in total joint replacements such as hip, knee and recently ankle. However, there has not been any evidence-based medicine for TXA in reconstructive foot and ankle surgery. This study attempted to determine the effect of TXA on outcomes of total ankle arthroplasty, ankle and hindfoot fusions including time to fusion and rates of wound complication, nonunion, and revision surgery. The main hypothesis was that TXA would improve surgical outcomes by reducing hematoma formation and swelling.

A level III retrospective study was conducted at an academic medical institution from 2015 to 2020. 212 patients with hindfoot fusions, ankle fusions, and total ankle arthroplasties (TAAs) with minimum follow up of more 3 months were selected in this study. 217 total primary procedures including TAA = 72, subtalar fusion = 47, ankle fusion = 36, double arthrodesis = 33, tibiotalocalcaneal fusion = 20, triple arthrodesis = 8, and pantalar fusion = 1) were performed and within these procedures, 101 procedures contained TXA injection (TXA group), and 116 procedures were without TXA (control group or non-TXA group). Demographics, ASA score, smoking status, medical comorbidities, preoperative diagnoses, and surgical indications were recorded. Primary outcomes included deep/superficial wound infections, delayed wound healing, union rate, time to union, readmissions within 90 days, and revision surgeries.

The TXA group exhibited significantly less postoperative infections requiring oral antibiotics (5.9% versus 15.5%, P = 0.025). Subgroup analysis of TAAs (n = 72) was shown to have significant fewer infections requiring oral antibiotics (4.7% versus 31%, P = 0.005) and less delayed wound healing (25.6% versus 48.3%, P = 0.047) in the TXA group compared to the control group. Similarly, subgroup analysis of ankle and hindfoot fusions (n = 145) was shown to have significant shorter time to fusion (4.87 versus 6.74 months, P = 0.049), fewer revision surgeries (8.6% versus 21.8%, P = 0.036) and shorter length of follow-up (0.96 versus 1.29 years, P = 0.030) in the TXA fusion group compared to the control group. Interestingly, the TXA fusion patients had significantly fewer active smokers (5.2% versus 16.1%, P = 0.045), and more preoperative Charcot joints (20.7% versus 5.7%, P = 0.006).

The use of Tranexamic acid (TXA) was shown to effective in improving surgical outcomes in total ankle arthroplasty including having few infections and delayed wound healing, which were also reflected by previous studies on similar topic. Furthermore, this study successfully showed that TXA was also very effective in improving surgical outcomes including shorter time to fusion, few revision surgeries, shorter follow-up time in ankle and hindfoot fusions. However, there were several limitations to this study including selection bias (more charcot patients in the TXA group compared to the non-TXA group), lacking patient reported outcomes, and lacking long-term functional outcomes. Overall, with the findings from this study, tranexamic acid (TXA) should be considered in routine use for TAA and hindfoot/ankle fusion cases.

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