

# TXA safe and effective to reduce blood loss in joint replacement surgery, study finds

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Blood loss and the need for a blood transfusion are major concerns in joint replacement surgery, but a new use for an old drug is proving effective in reducing blood loss and transfusion rates, according to a study at Hospital for Special Surgery (HSS). The drug, tranexamic acid, or TXA, has been used for decades in heart surgery, to treat hemophilia and to stop excessive uterine bleeding.

After reviewing thousands of patient records, HSS researchers found that TXA was safe and effective, reducing the need for a blood transfusion by more than 50 percent. The study, "Topical versus Intravenous Tranexamic Acid in Hip and Knee Arthroplasty: Efficacy and Safety" was presented at the annual meeting of the American Academy of Orthopaedic Surgeons on March 1 in Orlando, Florida.

"We launched the study, as conflicting results have been published regarding the use of TXA in patients undergoing hip and knee replacement," said Geoffrey Westrich, MD, senior study author and director of research, Adult Reconstruction and Joint Replacement Service at Hospital for Special Surgery. "There was also concern regarding a potential increased risk of a blood clot, although previous studies have shown this drug to be safe."

TXA is classified as an "anti-fibrinolytic," or blood clot stabilizer, whose mechanism of action reduces bleeding. Dr. Westrich noted that intravenous TXA should not be used in patients who have a cardiac stent or in those who have had a previous blood clot.

For their study, investigators retrospectively reviewed the records of 4,449 patients who had hip or knee replacement over a six-month period. There were 720 patients who received tranexamic acid topically, 636 who received it intravenously, and 3,093 patients who received no TXA.

Researchers found that 9.7% of patients who received TXA received a blood transfusion, compared to 22.1% of those patients who did not receive it. Patients who were not given TXA received an average of 0.37 units of blood compared to 0.13 units for patients who received the drug. There was no significant difference in effect between topical and intravenous administration of TXA. In patients who could not receive the drug intravenously because of a contraindication (i.e. cardiac stent or previous blood clot), topical TXA was just as effective.

"At our institution, TXA in either intravenous or topical form was effective in decreasing the amount of blood transfusions, as well as the number of units of blood transfused in primary and revision hip and knee replacement," Dr. Westrich noted. "Furthermore, when safety was evaluated, there was no statistically significant difference in [blood clots](#) in patients who received IV or topical TXA, reconfirming its safety."

Dr. Westrich added that more studies are needed comparing various doses and combining IV and topical TXA to determine what would provide the greatest benefit to patients.

Provided by Hospital for Special Surgery

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