

## Tranexamic Acid is Safe and Effective in Revision Knee Arthroplasty for Periprosthetic Joint Infection

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**Disclosures:** Pranit Kumaran (N), Julian Wier (N), Sahil S. Telang (N), Steven H. Liu (N), Jacob Becerra (N), Jay R. Lieberman MD (1-DePuy: A Johnson & Johnson Company. 3B-DePuy: A Johnson & Johnson Company. 4-BD Surgiphor, Hip Innovations Technologies. 7-Saunders/Mosby-Elsevier. 9-AAOS, Hip Society, Musculoskeletal Transplant Foundation, Western Orthopaedic Association), Nathanael D. Heckmann (1-Corin U.S.A. 3B-Intellijoint Surgical, MicroPort Orthopedics, Corin U.S.A., Zimmer. 4-Intellijoint Surgical. 9-AAOS, AJRR, AAHKS, Knee Society)

**INTRODUCTION:** Tranexamic acid (TXA) is used ubiquitously in total joint arthroplasty; however, very little has been reported on the efficacy of TXA when used during revision total knee arthroplasty (TKA) for periprosthetic joint infection (PJI). This study aimed to assess the benefits and potential harms of TXA in a cohort of patients undergoing first stage revision TKA for PJI.

**METHODS:** The Premier Healthcare Database was queried for adult patients (≥18 years) between 2016 and 2023. Using International Classification of Disease, Tenth Revision, Current Procedural Terminology codes, and hospital charge codes for antibiotics and spacers, patients undergoing stage-one revision arthroplasty for PJI following TKA were identified. Patients who received TXA were identified. Propensity score matching was used to balance cohorts. To account for residual confounding, multivariable logistic regression models were then used to assess our primary outcomes of postoperative transfusion, wound complications, deep vein thrombosis (DVT), and pulmonary embolism (PE).

**RESULTS SECTION:** 18,410 patients were 1:1 matched based on TXA exposure with appropriate balance. Both cohorts were 67 years old on average, with the majority being female and white. The average Charlson comorbidity index was similar for both cohorts (3.6 vs. 3.5). Similar rates of postoperative aspirin or low-molecular-weight heparin (74.9 vs. 74.2%) use were observed. TXA-treated patients had significantly lower rates of wound complications (10.0 vs 11.3%, p=0.004; adjusted odds ratio [aOR]=0.87, 95% confidence interval [CI]=0.79-0.95). Similar rates of postoperative transfusion (8.4 vs. 8.2%, p=0.71; aOR=1.00, 95% CI=0.90-1.12), DVT (1.93 vs. 1.96%, p=0.89; aOR=1.0, 95% CI=0.81-1.25), and PE (1.0 vs. 1.0%, p=0.66; aOR=1.11, 95% CI=0.82-1.49) were observed in both cohorts.

**DISCUSSION:** TXA was associated with lower rates of wound complications in patients undergoing revision TKA for PJI. TXA was not associated with VTE in this population.

**SIGNIFICANCE/CLINICAL RELEVANCE:** The results of this study suggest that TXA is a safe and effective agent to use following revision TKA for PJI, and its routine incorporation into postoperative management protocols should be strongly considered by arthroplasty surgeons.

IMAGES AND TABLES:

**Table 1:** Bleeding and thromboembolic outcomes for matched cohorts based on TXA exposure

	TXA+ N=9,205		TXA- N=9,205		P-Value	Multivariable Regression			
	Number	Percent	Number	Percent		Adjusted OR (aOR)	95% CI Lower Bound	95% CI Upper Bound	P-Value
<b>Postoperative Venous Thromboembolism</b>	252	2.74%	243	2.64%	0.682	1.06	0.89	1.28	0.504
<b>Postoperative Wound Complication</b>	918	9.97%	1,040	11.30%	0.004	0.87	0.79	0.95	0.003
<b>Postoperative Transfusion</b>	769	8.35%	755	8.20%	0.708	1.00	0.90	1.12	0.970
<b>Postoperative Bleeding Complications</b>	2,849	30.95%	3,040	33.03%	0.003	0.89	0.84	0.95	<0.001
<b>Deep Vein Thrombosis</b>	178	1.93%	180	1.96%	0.915	1.01	0.81	1.25	0.960
<b>Pulmonary Embolism</b>	95	1.03%	89	0.97%	0.657	1.11	0.82	1.49	0.500