

# Aspirin is Superior to Low-Molecular-Weight Heparin Following Revision Knee Arthroplasty for Periprosthetic Joint Infection

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**INTRODUCTION:** There is no consensus regarding the optimal venous thromboembolism (VTE) chemoprophylaxis agent following surgery for periprosthetic joint infection (PJI). Aspirin (ASA) and low-molecular-weight heparin (LMWH) are two commonly used agents; however, comparative safety and efficacy data in this patient population is lacking. This study aimed to compare ASA to LMWH among patients undergoing first stage revision TKA for PJI.

**METHODS:** A retrospective database including approximately 25% of all surgeries performed in the United States was queried from 2016 to 2023. Patients undergoing revision arthroplasty for PJI with antibiotic spacers following TKA were identified. Patients who received either ASA or LMWH on postoperative day one were identified. Patients taking other prophylactic agents were excluded. 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 VTE and postoperative transfusion.

**RESULTS SECTION:** 10,472 patients (5502 males, 52.54%) were 1:1 matched based on VTE prophylaxis type. Both cohorts had an average age of 66 years and an average Charlson comorbidity index of 3.2. Tranexamic acid was utilized in 31.9% of the ASA cohort and 32.0% of the LMWH cohort. ASA patients had lower rates of VTE (0.95 vs. 1.62%, p=0.002 [deep vein thrombosis: 0.71 vs. 1.18%, pulmonary embolism 0.32 vs. 0.63%]; adjusted odds ratio [aOR]=0.62, 95% confidence interval [CI]=0.44-0.89). Postoperative transfusion rates were significantly lower in the ASA cohort (6.04 vs 8.17%, p<0.001; aOR=0.75, 95% CI=0.64-0.87).

**DISCUSSION:** ASA was associated with lower rates of VTE and transfusion compared to LMWH among patients undergoing revision TKA for PJI. ASA appears to be a safe and effective option for VTE chemoprophylaxis.

**SIGNIFICANCE/CLINICAL RELEVANCE:** ASA can be strongly considered as a first-line agent for venous thromboembolism prophylaxis in patients undergoing revision TKA for PJI.

IMAGES AND TABLES:

Table 1. Rates and adjusted odds of venothromboembolic disease and bleeding complications by patient thromboprophylaxis.

	Aspirin N=5,236		Low-Molecular-Weight Heparin N=5,236		P-Value	Multivariable Regression				
	Number	Percent	Number	Percent		Adjusted OR (aOR)	95% CI Lower Bound	95% CI Upper Bound	Intraclass Correlation Coefficient (ICC)	P-Value
Postoperative Venous Thromboembolism	50	0.95%	85	1.62%	0.002	0.62	0.44	0.89	0.1	0.01
Postoperative Transfusion	316	6.04%	428	8.17%	<0.001	0.75	0.64	0.87	0.32	<0.001
Postoperative Bleeding Complications	1,574	30.06%	1,726	32.96%	0.001	0.89	0.82	0.97	0.17	0.008
Postoperative DVT	37	0.71%	62	1.18%	0.012	0.6	0.4	0.91	0.13	0.015
Postoperative PE	17	0.32%	33	0.63%	0.023	0.52	0.29	0.93	0.11	0.028