Aspirin Utilization is Associated with Lower Rates of Transfusion Compared to Low-Molecular-Weight Heparin Following Revision Total Hip Arthroplasty for Periprosthetic Joint Infection

Sahil S. Telang BS[1], Julian Wier MD[1], Pranit Kumaran BS[1], Mckenzie W. Culler BA[1], Connor Buchannan BS[1] , Jay R. Lieberman MD[1], Nathanael D. Heckmann MD[1]

[1]Department of Orthopaedic Surgery, Keck School of Medicine of the University of Southern California, Los Angeles, California.
Email of Presenting Author: julianrwier@gmail.com

INTRODUCTION: The optimal chemoprophylactic agent following revision total hip arthroplasty (THA) requires a balance between safety and efficacy. This study assessed bleeding complications and venous thromboembolic (VTE) events in a cohort of patients undergoing first stage revision surgery for the management of periprosthetic joint infection (PJI) of the hip who received ASA for VTE prophylaxis.

METHODS: A national database was screened for all patients undergoing revision total hip arthroplasty for PJI using spacer and antibiotic chargers to validate accuracy of the patients included. Patients who received ASA were compared to patients who received low-molecular weight heparin (LMWH). Patients with a history of VTE and those 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: 5,272 patients were matched 1:1 based on VTE prophylaxis type. Both cohorts were 65 years old on average. Within the ASA cohort, 1,364 (51.75%) patients were female and 1,272 (48.25%) were male, while in the LMWH cohort, 1,330 (50.46%) were female and 1,306 (49.54%) were male. The average Charlson comorbidity index was similar for both cohorts (3.0 vs. 3.1, p=0.24). The ASA group had a lower rate of tranexamic acid (26.7% vs. 29.2%, p=0.03) utilization. ASA patients had equivalent rates of VTE (1.48% vs. 1.48%, p=1.000 [deep vein thrombosis: 1.14% vs. 1.14%, pulmonary embolism 0.38% vs. 0.42%]; adjusted odds ratio [aOR]=1.19, 95% confidence interval [CI]=0.72-1.95). Postoperative transfusion rates were significantly lower in the ASA cohort (11.8% vs 16.7%, p<0.001; aOR=0.62, 95% CI=0.52-0.75).

DISCUSSION: In patients undergoing revision THA for PJI, ASA chemoprophylaxis was associated with lower postoperative transfusion requirements but equivalent rates of VTE but compared to LMWH.

SIGNIFICANCE/CLINICAL RELEVANCE: Aspirin has become increasingly utilized as postoperative chemoprophylaxis for patients undergoing revision total joint arthroplasty. However, there is a paucity of evidence describing its safety and efficacy as a thromboembolic chemoprophylactic agent as well as its bleeding profile.

IMAGES AND TABLES:

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

	Aspirin N=2,636		Low-Molecular-Weight Heparin N=2,636			Multivariable Regression				
	Number	Percent	Number	Percent	P-Value	Adjusted OR (aOR)	95% CI Lower Bound	95% CI Upper Bound	Intraclass Correlation Coefficient (ICC)	P-Value
Postoperative Venous Thromboembolism	39	1.48%	39	1.48%	1	1.19	0.72	1.95	0.07	0.497
Postoperative Transfusion	311	11.80%	440	16.69%	<0.001	0.62	0.52	0.75	0.31	<0.001
Postoperative Bleeding Complications	1,330	50.46%	1,366	51.82%	0.321	0.94	0.84	1.06	0.15	0.312
Postoperative DVT	30	1.14%	30	1.14%	1	0.88	0.51	1.51	0.1	0.641
Postoperative PE	10	0.38%	11	0.42%	0.827	0.9	0.35	2.35	0.02	0.83