

Aspirin is Associated with a Lower Risk of Bleeding Complications than Enoxaparin in Aseptic Revision Total Hip Arthroplasty Patients

Arjun Aron, Matthew A. Lim, Sahil Sham Telang, Pranit Kumaran, Ryan Christopher Palmer, Sagar Telang, Jay R Lieberman, Nathanael D Heckmann

INTRODUCTION:

Aspirin is the most frequently prescribed thromboembolic chemoprophylaxis agent in primary total hip arthroplasty. However, its safety and efficacy in revision total hip arthroplasty (rTHA) remain poorly understood. This study aimed to characterize the postoperative risk profile of thromboembolic and bleeding complications following administration of either aspirin or enoxaparin to aseptic rTHA patients.

METHODS:

A database containing approximately one-quarter of all surgeries performed in the United States was searched to identify all aseptic both-component aseptic rTHAs from 2016-2023 receiving either aspirin or enoxaparin for thromboembolic chemoprophylaxis. Patient demographics and comorbidities were recorded for each of these two cohorts, in addition to the 90-day postoperative incidence of deep vein thrombosis (DVT), pulmonary embolism (PE), stroke, myocardial infarction (MI), and postoperative bleeding complications. Differences in postoperative complication risks were evaluated using a multivariable logistic regression model controlling for differences in patient characteristics and comorbidities.

RESULTS:

In total, 22,524 aseptic rTHA patients (aspirin: 13,463 [59.8%], enoxaparin: 9,061 [40.2%]) were identified. Patients receiving chemoprophylaxis with aspirin were found to have a lower risk of DVT (0.7% vs. 1.1%, adjusted odds ratio [aOR] = 0.73, 95% Confidence Interval [95% CI] = 0.54-0.97, P=0.033), but with comparable risk of PE, stroke, and MI compared to patients on enoxaparin. Patients receiving aspirin also had a lower risk of transfusion (2.0% vs. 3.0%, aOR = 0.80, 95% CI = 0.67-0.96, P=0.018), hemorrhage (0.5% vs. 0.8%, aOR = 0.55, 95% CI = 0.39-0.77, P=0.001), and aggregate bleeding complications (5.5% vs. 7.2%, aOR = 0.87, 95% CI = 0.78-0.98, P=0.017).

DISCUSSION AND CONCLUSION:

Aspirin chemoprophylaxis was associated with lower postoperative risk of DVT and fewer bleeding complications relative to enoxaparin. Although additional investigations are needed to validate our findings, surgeons may consider thromboembolic prophylaxis with aspirin following aseptic rTHA to mitigate the risk of postoperative bleeding complications.

90-Day Postoperative Outcomes	Enoxaparin (N=9,061)		Aspirin (N=13,463)		Univariate Regression			Multivariable Regression		
	N	%	N	%	OR	95% CI	P-Value	aOR	95% CI	P-Value
Deep Vein Thrombosis	103	1.1%	92	0.7%	0.60	0.45-0.79	<0.001	0.73	0.54-0.97	0.033
Pulmonary Embolism	46	0.5%	42	0.3%	0.61	0.40-0.93	0.022	0.84	0.53-1.32	0.445
Stroke	19	0.2%	24	0.2%	0.85	0.47-1.55	0.597	1.26	0.67-2.37	0.477
Myocardial Infarction	26	0.3%	31	0.2%	0.80	0.48-1.35	0.407	1.04	0.60-1.81	0.890

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	N	%	N	%	OR	95% CI	P-Value	aOR	95% CI	P-Value
Aggregate Bleeding Complications	650	7.2%	737	5.5%	0.75	0.67-0.84	<0.001	0.87	0.78-0.98	0.017
Transfusion	268	3.0%	269	2.0%	0.67	0.56-0.79	<0.001	0.80	0.67-0.96	0.018
Acute Anemia	480	5.3%	569	4.2%	0.79	0.70-0.89	<0.001	0.92	0.81-1.05	0.221
Hematoma	107	1.2%	125	0.9%	0.78	0.60-1.02	0.066	0.88	0.67-1.14	0.333
Hemorrhage	77	0.8%	61	0.5%	0.53	0.38-0.74	<0.001	0.55	0.39-0.77	0.001