

## Are Xa inhibitors associated with an increased risk of manipulation after primary total knee arthroplasty compared to aspirin in a contemporary cohort?

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### INTRODUCTION:

Venous thromboembolism prophylaxis following total knee arthroplasty (TKA) is typically provided by aspirin though some patients may require more aggressive chemoprophylaxis, now often with Xa inhibitors. There is concern Xa inhibitors may increase bleeding leading to swelling and stiffness which can lead to manipulation under anesthesia (MUA). This study sought to compare rates of MUA following primary TKA for patients receiving factor Xa inhibitors versus aspirin in a contemporary cohort and MUA rates between different Xa inhibitors.

### METHODS:

The Epic Cosmos database identified 461,510 patients undergoing unilateral primary TKA from 2021 to 2023, of whom 36,351 (8%) received rivaroxaban, 62,056 (13%) apixaban, and 363,103 (79%) aspirin for chemoprophylaxis. The incidence of MUA was determined using CPT code 27570 within three months of TKA. Univariable associations between chemoprophylaxis and MUA were assessed using chi-square tests. Multivariable associations adjusting for patient demographics, Elixhauser Comorbidity Index, and body mass index were assessed using logistic regression with odds ratios (O.R.) and 95% confidence intervals (C.I.) reported.

### RESULTS:

A total of 13,713 patients (3.0%) underwent MUA within 90 days of primary TKA. Table 1 presents both univariable and multivariable analyses comparing MUA rates across chemoprophylaxis groups. MUA was more common in patients receiving Xa inhibitors versus aspirin (3.9% vs 2.7%,  $P < .001$ ). Even after adjusting for patient characteristics, Xa inhibitors were still associated with an increased rate of MUA (O.R., 1.67; 95% C.I., 1.60 - 1.63). On univariable analysis, the rate of MUA was similar between rivaroxaban and apixaban (3.8% vs. 4.0%,  $P = .10$ ) though after adjusting for patient characteristics, rivaroxaban was associated a slightly lower rate (OR, 0.89; 95% C.I., 0.83 - 0.95).

### DISCUSSION AND CONCLUSION:

Xa inhibitors are associated with a significantly increased risk of MUA within 90 days of primary TKA compared to aspirin. The rates of MUA were similar between rivaroxaban and apixaban and if anything slightly lower for rivaroxaban. This information can be helpful for patient counseling and risk stratifying outcomes.

Comparison	Rate of Manipulation	
	Univariable association	Multivariable association*
Xa inhibitor vs Aspirin	3.9% vs 2.7%, $P < .001$	O.R., 1.67; 95% C.I., 1.60 - 1.63
Rivaroxaban vs Apixaban	3.8% vs. 4.0%, $P = .10$	OR, 0.89; 95% C.I., 0.83 - 0.95

\*Adjusted for patient demographics, Elixhauser Comorbidity Index, and body mass index