Aspirin vs Novel Anticoagulants: 90-Day VTE Outcomes After Aseptic Knee Revision Surgery

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INTRODUCTION: Venous thromboembolism (VTE) remains a significant postoperative complication following revision total knee arthroplasty (TKA). However, in the setting of aseptic TKA revision, it remains unclear how novel anticoagulants perform compared to aspirin (ASA). This study aims to compare the 90-day incidence of VTE complications and death among patients receiving different thromboprophylaxis regimens: ASA, apixaban, rivaroxaban, and enoxaparin following aseptic TKA revision.

METHODS:

Using the TriNetX database, we queried for patients undergoing aseptic TKA revision. Patients were stratified based on the anticoagulant administered postoperatively. 90-day incidence rates of proximal deep venous thrombosis (DVT), distal DVT, pulmonary embolism (PE), VTE and death were compared across groups before and after 1:1 propensity score matching for relevant demographics and comorbidities.

RESULTS:

Before matching, Apixaban was associated with a significantly higher rate of proximal DVT (1% vs 0.4%, p=0.001), PE (1.5% vs 0.7%, p<0.0001), and VTE (4.3% vs 1.9%, p<0.0001) compared to ASA. Rivaroxaban showed a higher incidence of PE (1.6% vs 0.7%, p<0.0001) and VTE (3.9% vs 1.9%, p<0.0001) compared to ASA. Enoxaparin was associated with higher rates of proximal DVT (0.7% vs 0.4%, p=0.019), distal DVT (0.7% vs 0.3%, p<0.0001), PE (1.9% vs0.7%, p<0.0001), death (0.7% vs 0.3%, p=0.001) and VTE (4.3% vs 1.9%, p<0.0001) relative to ASA.

After propensity score matching, enoxaparin was associated with increased rates of distal DVT only (0.7% vs 0.4%, p=0.032) compared to ASA. We did not appreciate any significant difference in all study outcomes when comparing apixaban and rivaroxaban to ASA.

DISCUSSION AND CONCLUSION:

ASA demonstrated similar 90-day VTE complication and death rates compared to apixaban and rivaroxaban in the setting of aseptic TKA revision. However, enoxaparin had persistently increased risk of distal DVT compared to ASA even after propensity score matching. ASA remains a safe option for postoperative thromboprophylaxis in the setting of aseptic TKA revision surgery compared to novel anticoagulants.