

Low-Dose Aspirin Provides Safe Thromboprophylaxis After Tibial or Femoral Shaft Surgery

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INTRODUCTION: To investigate trends, efficacy, and safety of low-dose aspirin (ASA) as venous thromboembolism (VTE) prophylaxis in high-risk and standard-risk patients who underwent open reduction and internal fixation (ORIF) for femoral or tibial shaft fractures.

METHODS: Retrospective national database study investigating patients that underwent ORIF for femoral or tibial shaft fractures between 2012-2023. Subjects were stratified to low-dose (81mg) ASA versus other chemoprophylaxis groups (high-dose ASA, warfarin, low molecular weight heparin [LMWH], direct oral anticoagulants [DOAC]) on or within 2-weeks following the date of the procedure. Utilization trends and VTE risk determined by 2022 ICM-VTE guidelines were assessed, while 90-day postoperative outcomes were evaluated between chemoprophylaxis groups. Groups were propensity matched for demographic and comorbid factors.

RESULTS: In total, 27,342 patients met inclusion criteria, among those, 14,947 were classified as high-risk and 12,370 as standard-risk. From 2012-2023, the use of low-dose ASA increased from 2.9% to 24.9%; high-dose ASA decreased from 9.6% to 8.1%; warfarin decreased from 5.5% to 0.6%, LMWH decreased from 88.7% to 77.4%, and DOAC utilization increased from 3.1% to 12.3%. High-risk VTE patients receiving low-dose ASA had reduced odds of thromboembolic events (2.2% vs 4.7%; OR: 0.5; 95% CI: 0.2 - 0.99; $p = 0.04$), while standard-risk VTE patients saw no differences when compared to other chemoprophylaxis agents. Finally, patients receiving low-dose ASA, regardless of risk stratification, had similar rates of other 90-day complications compared to alternative chemoprophylactic agents.

DISCUSSION AND CONCLUSION: This large retrospective cohort study demonstrates low-dose ASA as a suitable method of VTE chemoprophylaxis for high-risk and standard-risk patients undergoing ORIF for femoral or tibial fractures, and is likewise comparable to alternative chemoprophylaxis agents across 90-day postoperative complications. These findings suggest a role for low-dose ASA in orthopedic trauma patients with long bone fractures.