Aspirin Non-inferior to Direct Oral Coagulants in Nutritionally Optimized Obese Patients Following Total Hip Arthroplasty: A Propensity-Matched Analysis

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INTRODUCTION: Rising rates of morbid obesity have led to a growing number of high-risk patients undergoing total hip arthroplasty (THA), necessitating effective and safe thromboprophylaxis strategies. Direct oral anticoagulants (DOACs) and aspirin (ASA) are commonly used, yet comparative data on their safety profiles in obese populations remain limited. Importantly, nutritional status—a known determinant of wound healing and surgical recovery—is rarely accounted for in anticoagulation studies. The purpose of this study was to assess thromboembolic and wound-related outcomes in morbidly obese patients undergoing primary THA who received ASA or DOACs, while controlling for nutritional status.

METHODS: A retrospective cohort study was conducted using the TriNetX Research Network. International Classification of Diseases, Ninth and Tenth Revisions (ICD-9 and ICD-10) procedure and Current Procedural Terminology (CPT) codes were used to identify morbidly obese patients (BMI > 40 kg/m²) who underwent primary THA with at least two years of follow-up. Patients were grouped by postoperative anticoagulation regimen: ASA or DOACs. Patients with prior diagnoses of DVT/PE, hematologic malignancy, or known hypercoagulable conditions (e.g., Factor V Leiden, antiphospholipid syndrome) were excluded, as were patients with DOAC use 3–12 months preoperatively. DOAC use was defined by prescriptions initiated within two weeks before or after surgery, excluding chronic users. Patients with evidence of malnutrition (defined as albumin <3.5 g/dL or total lymphocyte count <1,500/mm³) were excluded to isolate nutritionally optimized individuals. Propensity-score matching (1:1) was applied based on age, sex, and Charlson Comorbidity Index. Multivariable logistic regression was used to evaluate complications, with risk ratios and 95% confidence intervals calculated using TriNetX and R 4.4.2.

RESULTS: A total of 8,753 morbidly obese patients were placed on ASA (n=7,176; 82.0%) or DOACs (n=1,577; 18.0%) after primary THA. After PSM, 3,150 matched patients (1,575 per cohort) were analyzed. There were no significant differences in 90-day rates of DVT (Relative Risk [RR]: 1.60; 95% Confidence Interval [CI]: 0.91, 2.81; p=0.097) or PE (RR: 0.82; 95% CI: 0.42, 1.62; p=0.572) between ASA and DOAC users (Figure 1). However, DOAC users had a lower risk of wound disruption (RR: 0.69; 95% CI: 0.50, 0.96; p=0.029) compared to ASA users.

DISCUSSION AND CONCLUSION: In nutritionally optimized morbidly obese patients undergoing THA, ASA and DOACs showed comparable efficacy in preventing thromboembolic events. However, DOACs were associated with reduced wound complication risk, suggesting a potential benefit in soft tissue healing without sacrificing hematologic safety.

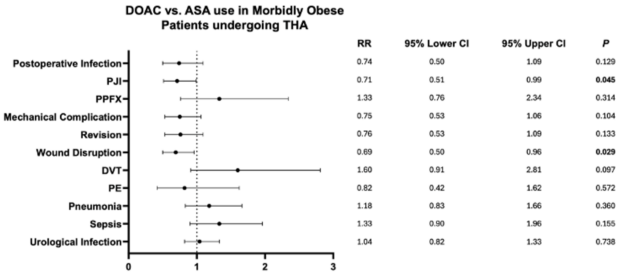

Figure 1. Relative risk of postoperative complications in morbidly obese patients undergoing THA with DOAC use compared to matched ASA cohort.