

Non-Tobacco Nicotine Use Carries Similar Postoperative Complication Risks as Tobacco Use Following Total Hip Arthroplasty: A Retrospective Cohort Analysis

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INTRODUCTION: Tobacco nicotine dependence (TND) is a well-established risk factor for complications after total hip arthroplasty (THA). However, the impact of non-tobacco nicotine dependence (NTND) on postoperative complications remains less understood, despite the growing popularity of products like e-cigarettes, pouches, and lozenges. This study compared 90-day and two-year postoperative outcomes in patients with NTND, TND, and nicotine independence (NID) undergoing THA.

METHODS: Using the TriNetX Research Network, 148,166 who underwent primary, elective THA were identified. Patients were categorized into NTND, TND, and NID cohorts based on nicotine and tobacco use within 6 months before THA. Propensity-score matching was performed based on comorbidities from the Charlson Comorbidity Index. After matching, each cohort included 7,412 patients with similar comorbidity profiles. Two analyses were performed, first comparing NTND to NID and then NTND to TND. 90-day outcomes include surgical site infection (SSI), wound disruption, deep vein thrombosis, sepsis, and readmissions. 2-year outcomes include periprosthetic fracture, periprosthetic joint infection (PJI), dislocation, and all-cause revision arthroplasty (rTHA).

RESULTS: Compared to NID, NTND patients had a 32% higher risk of SSI ($p = 0.0410$) and 39% higher risk of readmissions ($p = 0.0001$) at 90 days. At 2 years, NTND was linked to 41% increased prosthesis loosening ($p = 0.0467$), 38% higher PJI risk ($p = 0.0035$), 79% increased dislocation risk ($p = 0.0001$), and 40% higher revision arthroplasty risk ($p = 0.0005$). No significant differences were observed between NTND and TND at either time point.

DISCUSSION AND CONCLUSION: NTND patients faced a higher risk of both early and late postoperative complications compared to NID patients. However, their complication rates were similar to those with TND. These findings suggest that non-tobacco nicotine products may pose surgical risks comparable to tobacco use, highlighting the need to counsel all nicotine users on cessation before THA.