

Preoperative Hormone Replacement Therapy and Long-Term Outcomes Following Total Knee Arthroplasty in Postmenopausal Women

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INTRODUCTION: Hormone replacement therapy (HRT) has been shown to improve bone mineral density and reduce fragility fracture risk in postmenopausal women. Recent evidence suggests that HRT may also lower the risk of periprosthetic fracture (PPF) following total hip arthroplasty (THA), yet its impact in total knee arthroplasty (TKA) remains poorly understood. The purpose of this study was to evaluate the association between preoperative HRT use and the risk of PPF, revision, and venous thromboembolism (VTE) following primary TKA.

METHODS: A retrospective cohort study was performed using a large national database. Women who underwent elective TKA were identified and stratified based on HRT use within 6 months prior to surgery. Patients receiving HRT were propensity-score matched 1:2 to patients without a history of HRT use based on age and Charlson Comorbidity Index. Kaplan-Meier and Cox proportional hazards analyses were conducted to evaluate 10-year rates of PPF, aseptic loosening, and revision surgery. Logistic regression was used to assess 90-day rates of VTE, adjusting for perioperative anticoagulation. A total of 21,220 patients were included.

RESULTS:

There were no significant differences in 10-year risk of PPF (Hazard Ratio [HR]: 0.9; 95% CI: 0.7–1.05), revision (HR: 1.1; 95% CI: 0.98–1.2), or aseptic loosening (HR: 1.1; 95% CI: 0.98–1.2) between patients receiving and not receiving HRT. HRT use was not associated with increased odds of DVT (OR: 0.98; 95% CI: 0.9–1.1), pulmonary embolism (OR: 0.89; 95% CI: 0.73–1.09), or cerebrovascular accident (OR: 0.97; 95% CI: 0.7–1.3) within 90 days.

DISCUSSION AND CONCLUSION: In contrast to recent findings in THA, preoperative HRT use was not associated with a significant reduction in PPF or revision risk following TKA. HRT use was also not associated with increased short-term thromboembolic complications. Further research is warranted to understand differential effects of HRT across joint arthroplasty types.