Estrogen Replacement Therapy is Associated with a Decreased Risk of Venous Thromboembolism and Major Medical Complications after Hip and Knee Arthroplasty

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INTRODUCTION: Estrogen replacement therapy (ERT) is prevalent in patients undergoing hip or knee arthroplasty. Current guidelines vary and ERT is often held prior to surgery due to perceived risk for venous thromboembolism (VTE) or post-operative medical complications. We aimed to investigate the associated risk of ERT on VTE and major medical complications after hip or knee arthroplasty.

METHODS:

A retrospective review was performed with a large national database querying International Classification of Disease, tenth revision procedure codes identifying 77,953 primary total hip arthroplasty (THA) procedures and 176,379 total knee arthroplasty (TKA) procedures from 2015-2020. Demographic data collected included age, Charleston Comorbidity Index (CCI), obesity diagnosis, tobacco use, and diabetes. Of THAs, a cohort of 2,537 (3.3%) were prescribed ERT within 90 days of surgery and this was propensity matched to 7,611 patients for age, obesity diagnosis, tobacco, and diabetes. Of TKAs, a cohort of 5,770 (3.3%) were prescribed ERT within 90 days of surgery which was propensity matched to 17,310 patients in a similar fashion. Propensity matched data was qualified with adjusted odds ratios and confidence intervals for DVT, pulmonary embolism (PE), total medical complications, and 90-day readmissions. RESULTS:

After propensity matching, ERT use in THA demonstrated decreased risk of deep venous thrombosis (DVT) (OR 0.42 [0.24-0.75]; p=0.004), pulmonary embolism (PE) (OR 0.28 [0.11-0.77]; p=0.006), and medical complications (OR 0.42 [0.27-0.67]; p<0.001). Among TKAs, ERT use was associated with decreased risk of DVT (OR 0.65 [0.47-0.90]; p=0.01), PE (OR 0.57 [0.36-0.90]; p=0.02), and medical complications (OR 0.64 [0.50-0.81]; p<0.001).

DISCUSSION AND CONCLUSION:

ERT in patients undergoing THA or TKA is associated with a decreased risk of both VTE and major medical postoperative complications. These findings should be considered when counseling patients regarding management of ERT when undergoing TJA and can inform potential future prospective investigations comparting various perioperative management strategies.