

Sex Specific Post-Operative Outcomes of Primary Total Hip Replacements: The Performance of Total Hip Replacement Procedures Leads to Worse Outcomes in Men

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INTRODUCTION: The demand for primary total hip arthroplasty (THA) is expected to increase significantly in the coming years, and women are expected to account for the greatest proportion of this increased demand. The purpose of this study was to determine using a national database, the effect of sex on 90-day outcomes in primary THA patients while matching for confounding variables. Specifically, we evaluated: (1) in-hospital lengths of stay; (2) 90-day readmission rates; (3) 90-day medical complications; (4) and total global 90-day episode of care (EOC) costs in men and women.

METHODS: Using the 100% Medicare Standard Analytical Files (SAF), a query from January 1st, 2005 to March 31st, 2014 from a nationwide database was performed to analyze patients who received a primary THA. The series was divided into two cohorts: men (n = 436,737) and women (n = 436,737). Men and women patients were matched according to age and Elixhauser-Comorbidity Index (ECI). Uni- and multi-variable regression analyses were performed to analyze the effects of sex on in-hospital lengths of stay, 90-day readmission rates, 90-day medical complications, and total global 90-day episode of care (EOC) costs.

RESULTS SECTION: Men had greater overall 90-day medical complications compared to women following primary THA (1.28 vs. 1.19%, $p < 0.001$). Men were found to have higher rates of acute kidney failure (0.12 vs 0.05%, $p < 0.0001$), acute pancreatitis (0.02 vs. 0.01%, $p < 0.0001$), cerebrovascular accidents (0.03 vs. 0.01%, $p < 0.0001$), deep vein thromboses (0.06 vs. 0.04%, $p < 0.0001$), and myocardial infarctions (0.02 vs. 0.01%, $p < 0.0001$). Women were found to have higher rates of acute post-hemorrhagic anemia (0.31 vs. 0.30%, $p < 0.001$) and urinary tract infections (0.40 vs. 0.28%, $p < 0.0001$) compared to men. Men had shorter in-hospital LOS (3.42 vs. 3.54 days, $p < 0.001$), but greater 90-day readmission rates (7.67 vs. 6.39% $p < 0.0001$). Both cohorts had similar total global 90-day episode of care costs (\$14,869.85 ± \$12,333.50 vs. \$14,957.34 ± \$10,915.61, $p = 0.36$).

DISCUSSION: Men undergoing THA have a greater number of overall 90-day medical complications and readmission rates while women have higher incidence of UTI and post-hemorrhagic anemia, and longer LOS. Understanding sex-based differences in complication rates and outcomes can help surgeons with pre-operative counseling and targeted pre-operative optimization.

SIGNIFICANCE/CLINICAL RELEVANCE: While matching for confounding variables, the current study identified sex specific differences in in-hospital length of stay and 90-day medical complications, readmissions, and EOC costs following primary THA.