An Assessment of Gender-Specific Risk of Implant Revision Following Primary Total Hip Arthroplasty: A Systematic Review and Meta-Analysis

Poster Presentation at Society of Toxicology 57th Annual Meeting
March 11-15, 2018
San Antonio, Texas

Riordan, A., K.M. Towle and A.D. Monnot

Abstract:
Total hip arthroplasty (THA) has been a successful reconstructive procedure to mitigate pain associated with diseases of the hip joint. However, some THA procedures require revision due to mechanical or biological failure. The purpose of this study was to synthesize and examine the evidence on the relative risk of revision in men and women following primary THA procedures. We conducted a systematic literature review of cohort studies reporting THA revision risk estimate by gender. Study quality scoring and a random effects meta-analysis were performed to estimate the meta-relative risk (meta-RR) and corresponding 95% confidence interval (95% CI) of revision, comparing men to women. Males had a statistically significant increased risk of revision following primary THA (meta-RR=1.33 (95% CI: 1.13-1.57)), when compared to females. When stratified by cause of revision, males had a statistically significant increased risk of revision due to any-cause (meta-RR=1.16 (95% CI: 1.01-1.33)), aseptic loosening (meta-RR=1.54 (95% CI: 1.05-2.25)), and infection (meta-RR=1.55 (95% CI: 1.11-2.15)). For primary THA operations performed during the 2000s, males in Europe had a statistically significant increased risk of revision (meta-RR 1.42 (95% CI: 1.25-1.61)) while males in the United States had a statistically significant decreased risk of revision (meta-RR 0.80 (95% CI: 0.72-0.89)). These results provide evidence for an increased risk of revision following THA among males, which may be impacted by geographic location and time period of operation. Findings suggest that a better understanding of the underlying drivers of gender-specific risks would help reduce post-surgery complications.