Surgeon experience affects posterior-approach THA dislocation risk, but is mitigated by robotics

Gireesh B. Reddy, Alex Michael Hollenberg, Madeline Ann Sauer, Robert L Barrack, Andrew Schneider, Ilya Bendich

INTRODUCTION:
Despite advances in total hip arthroplasty (THA), dislocation remains a common complication. Higher annual surgical volume has been linked to lower dislocation rates, but there is sparse data on effect of surgeon year in practice. The purpose of this study was to determine if surgeons within their first five-years of practice have similar THA dislocation rates to experienced surgeons. Additionally, we sought to determine if enabling-technologies may mitigate dislocation risk.
METHODS:
Three-thousand two-hundred forty-four consecutive, primary, posterior-approach THAs at a single, academic institution between 06/2018 and 11/2024 were retrospectively reviewed. Patients 18 years or older with unilateral primary hip osteoarthritis who underwent posterior-approach THA with a fellowship-trained adult reconstruction surgeon were included. All surgeons (n=10) performed greater than 40 posterior-approach THAs annually (range:41-202). Etiologies other than osteoarthritis or conversion cases were excluded. Demographics, history of spinal fusion, use of enabling-technology (computer-navigation or robotics), implant characteristics, dislocations, and revisions were collected via chart review and patient phone calls. “Early-career” (n=6) vs. “experienced” (n=4) surgeons were delineated by less or more than 5-years in practice, respectively. Student’s *t*-test, chi-squared, and multivariate logistic regression analyses were performed.
RESULTS:
Early-career surgeons had a higher manual posterior-approach dislocation rate compared to experienced surgeons (4.2% vs. 1.2%, p=0.0002). Early-career surgeons utilizing robotic-assistance had a similar dislocation rate compared to experienced surgeons performing manual THA (0.3% for early-career with robotics vs 1.2% for experience surgeons manually, p=0.36). After controlling for demographics, spine fusion, and femoral head size, robotic-assistance was found to be protective against dislocation among early-career surgeons (OR: 0.10, p=0.03). Computer-navigation was not associated with improved dislocation risk (p=0.23).
DISCUSSION AND CONCLUSION: Surgeon experience (>/= 5 years in practice) is associated with a lower posterior-approach THA dislocation risk. Robotic-assistance improves dislocation risk among early-career surgeons (<5 years in practice), placing their rates on par with experienced surgeons.