The Hip-Uterus Relationship: Pregnancy, Delivery, and the Impact on Prosthetic Hip Stability

Jillian C Rogers, Maxwell J Rakutt, David C Landy, Mark Haimes

INTRODUCTION:
Total hip arthroplasty (THA) is sometimes performed in patients of childbearing age, raising concerns about possible effects of pregnancy and delivery on surgical outcomes. Pregnancy and delivery can alter spinal and pelvic alignment, hormones including relaxin affect native joint instability, and increased patient weight alters hip loads. Little is known regarding whether pregnancy and mode of delivery following THA are associated with prosthetic hip instability.
METHODS:
A large insurance claims database was utilized to retrospectively identify a cohort of 34,764 (2.4% of all THA) female patients aged 18-50 with no history of prior pregnancy who underwent THA from 2014-2023. Patient age at index arthroplasty was identified and incidence of post-THA prosthetic hip dislocation for patient groups based on subsequent pregnancy and mode of delivery was compared using chi-squared analyses.
RESULTS:
Post-THA pregnancy was identified in 579 patients (1.7%). Of these, only 189 (33%) had a captured procedure code for delivery, and of all included THA patients 71 underwent vaginal delivery (0.2%) and 118 underwent caesarian section (0.34%). These patients tended to be younger than the comparative cohort without history of pregnancy. The incidence of post-operative prosthetic hip dislocation was not significantly different for those with or without history of post-THA pregnancy (22 patients, 3.8%; 1,453 patients, 4.1%, respectively, p=.69), or when comparing mode of delivery (Cesarean section: 4 patients, 3.4%; spontaneous vaginal delivery: 2 patients, 2.8%, p=.83).
DISCUSSION AND CONCLUSION: Even in a large database capturing millions of patient encounters, pregnancy was not found to be associated with prosthetic hip dislocation incidence. Further, stratification demonstrated no significant difference in incidence of prosthetic hip dislocation between cesarean and vaginal deliveries. While younger female patients may be at increased risk of dislocation, this does not appear to be affected by pregnancy or delivery method suggesting surgeons can counsel patients appropriately.