

## **Nerve Palsy After Direct Anterior vs. Posterior Total Hip Arthroplasty: Incidence, Risk Factors, and Recovery**

Sean E Slaven, Henry Ho<sup>1</sup>, Robert A Sershon<sup>2</sup>, Kevin B Fricka<sup>2</sup>, William George Hamilton

<sup>1</sup>Anderson Orthopaedic Research Institute, <sup>2</sup>Anderson Orthopaedic Clinic

**INTRODUCTION:** There is sparse modern literature on the incidence and risk factors for lower extremity nerve palsy in the most common current surgical approaches for total hip arthroplasty (THA). The purpose of this study is to establish the incidence and time to recovery of nerve palsy following THA using the direct anterior (DA) and posterolateral (PL) approaches and identify associated risk factors.

**METHODS:** An institutional database was used to query 10048 primary THAs performed between 2009-2021. 6593 (65.7%) were performed with the DA approach (4 surgeons), and 3455 (34.3%) were performed with the PL approach (5 surgeons). Postoperative femoral (FNP) and sciatic/peroneal (PNP) nerve palsies were identified. Incidence and time to recovery was calculated, and the association between surgical and patient risk factors and the specific nerve palsy were evaluated using Chi-square tests.

**RESULTS:** The overall rate of nerve palsy was 0.35% (35/10048), and was lower with the DA approach (0.26%, 17/6593) than PL approach (0.52%, 18/3455), RR=2.0, p=0.03. PL approach had higher rate of PNPs (0.46% vs. 0.05%;p<0.01) while DA approach trended towards higher rate of FNP (0.21% vs. 0.06 %;p=0.07). 56.3% of FNPs experienced full clinical recovery vs. 57.9% of PNPs (p=0.92), without significant difference in time to recovery (5 months vs. 8 months, p=0.13). Female sex was associated with higher rate of FNP (0.47% vs. 0.18%;p=0.01) and higher risk of nerve palsy overall (RR=2.6, p=0.01). PNPs occurred in younger patients than FNPs (57.9 vs. 67.5 years; p=0.02). There was no association between BMI, limb lengthening, surgeon, or surgery year and type of nerve palsy.

**DISCUSSION AND CONCLUSION:** Nerve palsy is rare after THA, but more common with the PL compared to DA approach. Femoral and sciatic/peroneal palsies had similar rates of recovery and time to recovery. Female sex was associated with FNP, and younger age was associated with PNP.