Recovery of Patient-Reported Outcome Measures Occurs Earlier in Patients Undergoing Anterior Compared to Posterior Approach in Total Hip Arthroplasty

Gregg R Klein, Harlan B Levine, Ari Douglas Seidenstein[1], Omar A Sarhan, Anna N Ren, Scott H Abshagen[2], Jess H Lonner[3]
[1]Rothman Orthopaedics, [2]Zimmer Biomet, [3]Rothman Orthopaedic Institute

INTRODUCTION: The anterior approach for total hip arthroplasty (THA) has gained popularity due to its perceived benefit of a faster recovery. Criticism of previous reports includes patient selection bias, where those undergoing THA with anterior approach may have higher baseline health and functional status. The goal of this study was to compare patient reported outcomes over time, controlling for baseline factors.

METHODS: This is a secondary data analysis from a prospective cohort study of patients utilizing a smartphone-based care management platform following THA. Included patients underwent THA using either the posterior or anterior approach. Only those with available demographic and comorbidity data, as well as HOOS JR data at baseline and one-year follow-up were included. HOOS JR and EQ5D scores through one year, as well as changes from baseline, were the primary outcomes of interest. Longitudinal models were created to control for baseline patient characteristics and investigate the impact of surgical approach on patient-reported outcomes over time. Significance was assessed as $p<0.05$.

RESULTS: Of the 1364 patients evaluated, 731 (53.6%) were female and 840 (61.6%) used the posterior approach. Patients in the posterior approach group had higher BMI (29.6±5.8 vs 28.9±5.7, p=0.03) and comorbidity index scores (0.89 ±1.22 vs 0.76±1.11, p=0.04) pre-operatively. The anterior group included significantly more females (57.1% vs 51.4%, p=0.04), though ages were similar (61.8±9.9 VS 61.3±10.6, P=0.40). HOOS JR scores were similar at baseline (53.5±13.2 vs 53±12.3, p=0.44), but were higher post-operatively in the anterior approach group through six months (87.3±12.9 vs 85.5±12.9, p=0.03), though a clinical difference is questionable. At one year post-operatively, the HOOS JR scores did not vary between groups (90.0±12.3 vs 90.6±11.9, p=0.48), nor did score changes from baseline (36.4±16.1 vs 37.3±15, p=0.47). On longitudinal multivariate analysis, comorbidity index (p=0.0006), pre-operative HOOS JR score (p<0.0001), and time since surgery (p<0.0001) were significantly associated with HOOS JR scores. Anterior approach was significantly associated with higher HOOS JR scores in the early postoperative period (p=0.009). EQ5D scores demonstrated similar trends, where baseline scores were similar in anterior and posterior approaches (0.50±1.2 vs 0.48±0.26, p=0.13), with significantly higher scores through 6 months in the anterior approach group (0.89±0.15 vs 0.86±0.16, p=0.005). EQ5D scores were similar at one year (0.90±0.14 vs 0.89±0.17, p=0.56); longitudinal analysis suggested that abbreviated comorbidity index (p=0.001), gender (p=0.04), approach (p=0.01), preoperative EQ5D (p<0.001) and time since surgery were associated with EQ5D scores over time.

DISCUSSION AND CONCLUSION: After controlling for important baseline characteristics, patients undergoing THA with anterior approach appear to demonstrate earlier improvements in HOOS JR and EQ5D scores. Patient selection, as well as surgeon training, may continue to affect outcomes by THA surgical approach.