Surgical Approach Impacts Patient-Reported Symptoms Following Arthroplasty for Femoral Neck Fractures

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Purpose: We aimed to examine outcomes between patients with displaced femoral neck fractures (FNFs) managed with total hip arthroplasty (THA) or hemiarthroplasty (HA) via the anterolateral vs posterior approach.

Methods: We used data from the HEALTH trial, which included 1441 patients aged >49 years with displaced FNFs randomized to receive either THA or HA. We calculated each patient's propensity to undergo arthroplasty via the posterior approach, and matched them to 1 control (anterolateral) based on age (±5 years), and propensity score. We used $\chi 2$ and Fisher exact tests to compare dichotomous outcomes between matched groups, and repeated measures analysis of variance (ANOVA) to examine differences in Western Ontario and McMasters Universities Osteoarthritis Index (WOMAC) subscores from baseline to 1 year postoperative. We used logistic regression to identify independent predictors of reoperation for instability in the posterior group.

Results: We identified 1306 patients for this subanalysis, 876 (67.1%) who received arthroplasty via an anterolateral approach, and 430 (32.9%) a posterior approach. The unadjusted rate of reoperation was significantly higher in the posterior group (10.7% vs 7.1%). Specifically, the rate of treatment for dislocation was higher in the posterior group (6.3% vs 2.0%). Following propensity score matching, we retained 790 patients, 395 in each group, with no between-group differences in patient, fracture, or implant characteristics. The matched cohort had a higher rate of comorbidities (hypertension, kidney disease, osteoporosis, and cancer), and were less likely to be employed compared to the unmatched cohort. The rate of treatment for dislocation remained higher rate in the posterior group (6.1% vs 2.0%) following matching. Repeated measures ANOVA revealed significantly better WOMAC pain, stiffness, function, and total scores in the posterior group. Between-group differences at 12 months were: pain, 0.59 (0.03-1.15); stiffness, 0.62 (0.35-0.87); function, 2.99 (0.12-5.86); and total, 3.90 (0.24-7.56). We identified THA (vs HA, odds ratio 2.05 [1.05-4.01]) as the only independent predictor of treatment for dislocation in the posterior group.

Conclusion: Our analyses revealed that compromised patients with displaced FNFs who undergo arthroplasty via the posterior approach may report better symptoms at 1 year vs the anterolateral approach, despite a higher odd of reoperation for instability.