The Number of Levels Fused During Lumbar Spinal Fusion Impacts Total Hip Arthroplasty Functional Outcomes

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INTRODUCTION:
Total hip arthroplasty (THA) and lumbar spinal fusion (LSF) are commonly performed, with many patients requiring both procedures. While patients with three or more levels fused during LSF have increased postoperative opioid consumption after undergoing THA, it is unknown whether the number of levels fused during LSF impacts functional outcomes after undergoing THA.
METHODS: A retrospective study was conducted at a tertiary academic center. Inclusion criteria comprised patients who underwent both THA and LSF and had a minimum of one-year follow-up for the Hip Disability and Osteoarthritis Outcome Score Junior (HOOS-JR). Exclusion criteria consisted of revision THA. Operative notes were reviewed to determine the number of levels fused during LSF. Statistical analysis consisted of T-tests and Chi-Square tests, and statistical significance was defined as a p-value <0.05.
RESULTS: 154 patients underwent one-level LSF, 77 patients underwent two-level LSF, and 60 patients underwent three-or-more level LSF. No significant differences existed in age, race, body mass index, and Charlson Comorbidity Index between the cohorts. While preoperative HOOS-JR was similar among the three cohorts, patients with three-or-more level LSF had significantly lower HOOS-JR than patients with two-level or one-level LSF (69.3 vs. 79.7 vs. 76.5; $p = 0.002$) and a lower delta HOOS-JR (23.3 vs. 38.4 vs. 34.0; $p < 0.001$). Patients with three-or-more level LSF had a significantly lower rate of achieving minimal clinically important difference (55.2% vs. 85.2% vs. 74.4%; $p = 0.001$) and the patient acceptable symptom state (35.0% vs. 66.2% vs. 56.5%; $p = 0.001$), compared to patients with two-level or one-level LSF, respectively.
DISCUSSION AND CONCLUSION: Surgeons should counsel patients with a history of three-or-more level LSF that they have a lower rate of hip function improvement and symptom acceptability after undergoing THA, compared to patients with a fewer number of levels fused during LSF.