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Comparing 30-day Outcomes following Single-Level Posterior Cervical Fusion between Orthopaedic Surgeons and Neurosurgeons: A 6-Year National Analysis

Introduction: Orthopaedic surgeons and neurosurgeons perform posterior cervical fusion (PCF), but little evidence is available comparing outcomes between the two types of providers for PCF. This study aimed to compare the demographics, baseline medical profiles, perioperative factors, and 30-day postoperative complications, reoperations, and readmissions of patients following single-level PCF by both providers.

Methods: Using the NSQIP database, we identified patients who underwent elective single-level PCF between 2011 and 2016 by orthopaedic surgeons and neurosurgeons.

Results: A total of 4,146 single-level PCF patients were included. Of these, 30.2% of patients were treated by orthopaedic surgeons and 69.8% by neurosurgeons. Orthopaedic patients incurred slightly lower rates of 30-day readmission (5.6 vs 7.5%, $p < 0.05$). However, they had comparable rates of 30-day overall (13.6 vs 12.6%), major (3.3 vs 3.2%), and minor (12.0 vs 11.5%) complications, as well as reoperations (4.0 vs 4.4%), all $p > 0.05$. Compared to neurosurgeon subspecialty, orthopaedic surgery was not found to be a significant predictor of 30-day rates of overall complications (OR=1.13, $p=0.24$), major complications (OR=1.10, $p=0.616$), minor complications (OR=1.08, $p=0.094$), reoperation (OR=0.93, $p=0.8$) or readmission (OR=0.761, $p=0.07$).

Discussion: When comparing 30-day adverse postoperative outcomes between orthopaedic surgeons and neurosurgeons following PCF, the study found that despite a higher volume of procedures by neurosurgeons and a slightly lower 30-day readmission rate for orthopaedic patients, there were no differences in adverse outcome rates in the 30-day postoperative period, and no associations were found with either subspecialty. Orthopaedic surgeons may be under-performing single-level PCF procedures despite largely comparable outcomes to neurosurgeons.

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