

Spinal Versus General Anesthesia in The Setting of Lumbar Disk Surgery: An ACS-NSQIP 2008-2016 Study

Introduction: General anesthesia is still preferred over spinal anesthesia in spinal surgery, despite contradictory data regarding the impact of anesthetic type. This study compared 30-day postsurgical outcomes between spinal and general anesthesia in lumbar spine surgery.

Method: A retrospective analysis was performed using the American College of Surgeons National Surgical Quality Improvement Program (ACS- NSQIP) database. We queried lumbar disk procedures between 2008-2016 using CPT codes (63030, 63035, 63042) and categorized into general or spinal anesthesia. One-to-one propensity score matched controlling for estimated probability of morbidity, age, and gender was performed. Patient demographics, comorbidities, and 30-day postoperative outcomes were collected. Univariate and multivariate logistic regression models were used to determine anesthetic type as risk factor for adverse postoperative outcomes.

Results: 66,736 patients underwent lumbar spine surgeries, with 60,847 patients given general anesthesia and 224 given spinal anesthesia. Using one-to-one propensity match, 106 patients in each group were selected, with male and female (52.8% and 47.2%) and white (79.7%), and no difference in demographics, ASA class, or comorbidities (all, $p > 0.05$). Eleven (5.2%) patients experienced postoperative adverse events with 4 patients (1.9%) having wound complications, 3 (1.4%) requiring blood transfusions, 7 (3.3%) readmissions, 2 (0.9%) requiring reoperation, 1 (0.5%) having pneumonia. Multivariate regression showed anesthetic type was not a predictor for any adverse events, complications, readmission, reoperations, or mortality (all, $p > 0.05$).

Conclusion: This study showed that neither general nor spinal anesthesia was a risk factor for 30-day postoperative complications in the setting of lumbar spinal surgery. The choice of anesthesia should be a tailored decision based upon clinical judgment and patient preference.