

Lumbar Discectomy Outcomes by Specialty: A Propensity-Matched Analysis of 7,464 Patients from the ACS-NSQIP Database

Darian R. Esfahani MD, MPH; Harsh Shah BA; Gregory D Arnone MD; Justin K. Scheer MD; Ankit Indravadan Mehta MD Department of Neurosurgery, University of Illinois at Chicago, Chicago, Illinois



Learning Objectives

By the conclusion of this session, participants should be able to:

- 1) Characterize common complications after singlelevel discectomies and their frequency of occurrence.
- 2) Compare and contrast different outcomes for single-level discectomies performed by neurosurgeons versus those performed by orthopedic surgeons.
- 3) Appreciate the low, comparable, complication risk for both surgical specialties, slightly higher transfusion rate among orthopedic surgeons, and slightly longer operative time among neurosurgeons.

Introduction

- Lumbar discectomy is a common procedure performed by orthopedic and neurological surgeons.
- While previous studies have examined preoperative risk factors and the impact of outpatient surgery versus inpatient admission on postoperative complications, the impact of surgeon specialty has not been examined.
- In this study, we investigate the impact of surgeon specialty on 30-day postoperative complication rates for single-level lumbar discectomies.

Methods

- All patients who underwent single-level lumbar discectomy between 2005 and 2014 were reviewed from the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database.
- Propensity-score matching and univariate binary regression was utilized to determine if surgeon subspecialty had an impact on 30-day post-operative complications.

Results

- 28,863 patients underwent single-level lumbar discectomies from 2005-2014. 12,659 cases met inclusion criteria.
- 3,733 (29.4%) operations were performed by orthopedic surgeons, while 8,926 (70.6%) were performed by neurosurgeons.
- A propensity-score matched sample of 7,464 total cases (3,732 orthopedic surgeon, 3,732 neurosurgeon) was analyzed for impact of surgeon specialty on 30-day outcomes.
- After matching, orthopedic surgeons and neurosurgeons were similar in all post-operative outcomes, except for a slightly higher frequency of blood transfusions (0.3%, n = 11) in orthopedic versus neurosurgery patients (0.1%, n = 3; p = 0.032), although this did not remain significant after Bonferroni adjustment.
- Mean operative time was slightly longer for neurosurgeons (83.7min) versus orthopedic surgeons (72.5min; p < 0.001). No significant differences existed between mortality, readmission, or reoperation rates.

More Expansive Operations 7,112 Studied Cases 12,659 Global Exclusions 9,092 Neurosurgery 8,926 Orthopedic Surgery 3,733

Case Selection. 28,863 patients were identified by CPT code. Excluded cases included global exclusions, such as different surgeon specialty, emergent surgeries, cases for a different indication, and more expansive operations.

Conclusions

- Single-level lumbar discectomies hold a low complication profile and show equivalent outcomes for both orthopedic and neurological surgeons, although neurosurgeons may exhibit a slightly longer mean operative time.
- In propensity-score matched cohorts, orthopedic surgeons had slightly higher rates of blood transfusions, although the number was small and did not remain significant after Bonferroni adjustment.

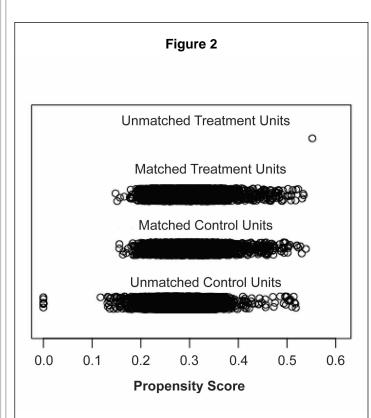


Figure 2: Distribution of Propensity Scores. Neurosurgery (control) and orthopedic (treatment) cases were matched for a total of 7,464 cases, 3,732 from each specialty.