

Impact of Resident Participation on Outcomes Following Single-level Anterior Cervical Discectomy and

Fusion: An Analysis of 3,265 Patients from the ACS-NSQIP Database

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Introduction

Although an integral part of academic medicine, surgical resident participation in the operating room and its impact on patient outcomes have been a topic of debate. No large-scale study has been performed to examine this relationship in anterior cervical discectomy and fusion (ACDF). We investigate the relationship between resident involvement in the operating room and 30-day complication rates in patients undergoing single-level ACDF.

Methods

The American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database was retrospectively reviewed to identify all patients who underwent single-level ACDF procedures during 2006-2013. A propensity score matching algorithm was employed to minimize baseline differences. Multivariate logistic regression analysis of unadjusted and propensity-matched cohorts was performed to examine the effect of resident participation on 30-day postoperative complication rates and length of hospital stay.

Results

A total of 3,265 patients met inclusion criteria. The propensity score matching procedure yielded 1,003 pairs of well-matched non-resident and resident pairs. The multivariate analysis of propensity score-matched population demonstrated that resident involvement was not associated with an increased risk for any of the complications analyzed, including overall complications, medical complications, surgical complications, mortality, cardiac arrest, deep venous thrombosis, or length of total hospital stay.

Conclusions

This large-scale, population-based study found that surgical resident participation in the operating room did not increase the risk of 30-day complications nor prolonged the length of hospital stay. Resident participation, however, was associated with an increased operative duration. Strategies to improve residents' technical proficiency outside of the operating room may enhance patient safety.

Learning Objectives

By the conclusions of this session, participants should be able to 1) describe how the NSQIP database captures resident involvement and 2) identify important areas impacting patient outcomes.

References

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