



Duration of Anesthesia as a Risk Factor for Postoperative Complications in Patients Undergoing Posterior Lumbar Fusion

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Introduction

Anesthesia duration has been shown to influence outcomes after certain procedures. Such a study has not been performed to date with posterior lumbar fusions outcomes.

Methods

Adult patients undergoing posterior lumbar fusions from 2005-2012 were identified by the Current Procedural Terminology (CPT) codes in the ACS NSQIP database. Patients were subdivided into quintiles of anesthesia time (Group 1, 62-187 minutes, Group 2, 187-236 minutes, Group 3, 236-295 minutes, Group 4, 295-373 minutes, and Group 5, 373-1140 minutes). Univariate and multivariate analyses were performed to assess the impact of anesthesia duration on 30-day postoperative complications.

Results

6,006 patients undergoing posterior lumbar fusion were identified. 1,128 (18.8%) had a postoperative complication. In univariate analysis, as anesthesia duration increased, there was a statistically significant increase in overall complications (36.8% in Group 5, compared to 22.3% in Group 4, 15.7% in Group 3, 12.2% in Group 2, 6.9% in Group 1). Specifically, pulmonary complications, return to the operating room, deep venous thrombosis/pulmonary embolism, sepsis, cardiac complications, and urinary tract infections were all increased in the groups of longer anesthesia duration. Mortality was not significantly different between groups of anesthesia duration. In multivariate analysis, the two groups with the longest anesthesia durations (quintiles 4 and 5) had increased total overall complications (for quintile 4, OR 3.45, 95% CI 2.64-4.53, $p<0.0001$, for quintile 5, OR 6.881, 95% CI 5.284-8.96, $p<0.0001$) and length of stay greater than five days (for quintile 4, OR 3.78, 95% CI 2.91-4.92, $p<0.0001$, for quintile 5, OR 6.075, 95% CI 4.70-7.86, $p<0.0001$). Patients in the highest group of anesthesia duration (>373 minutes) had statistically significant increased risk of return to the operating room (OR 2.45, 95% CI 1.46-3.86, $p<0.001$), venous thromboembolism (OR 3.75, 95% CI 1.68-8.33, $p=0.001$), and sepsis (OR 2.12, 95% CI 1.03-4.40, $p=0.002$).

Conclusions

Patients with increased anesthesia duration have increased risk of overall complications, venous thromboembolisms, sepsis, increased length of stays, and return to the operating room.

Learning Objectives

The aim of this study was to analyze whether duration of anesthesia influences complication rates in patients undergoing posterior lumbar fusions using a large national database.

References