

Does Pelvic Fixation Increase Morbidity and Mortality in Patients Undergoing Posterior Lumbar Fusion?

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Introduction

Pelvic fixation is utilized for various indications including lumbosacral fixation for long fusions to the sacrum, correction of pelvic obliquity and high-grade spondylolisthesis. Due to the complex nature of such a procedure there is the potential for considerable morbidity.

Methods

Patients greater than or equal to 18 years of age undergoing non-emergent posterior lumbar fusion with and without pelvic fixation from 2005-2012 were identified by CPT (Current Procedural Terminology) code in the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database. Propensity matching was done to accurately predict likelihood of complications in this cohort. Multivariate modeling was done to analyze if pelvic fixation was independently associated with morbidity in patients undergoing posterior lumbar fusion.

Results

There rate of pelvic fixation in patients undergoing posterior fusion was 3.6%. Patients with pelvic fixation more frequently had a history of previous cardiac surgery (7.90% vs 3.86%, p< 0.024) and a dependent functional health status prior to surgery (9.60% vs 3.50%, p <0.0001). Patients with pelvic fixation were also more likely to have length of stay > 5 days and were more likely to have an operative time > 4 hours. Patients undergoing pelvic fixation have increased risk of any morbidity (OR=2.5, p=0.002) and an increased risk of post-operative blood transfusion (OR=3.9, p<0.0001). Multivariate analysis showed that pelvic fixation is a significant predictor of morbidity in patients undergoing posterior lumbar fusion (OR 2.6, p=0.002).

Learning Objectives

The aim of this study was to analyze whether patients undergoing spinal deformity surgery with pelvic fixation are at higher risk for increased morbidity using a large national database.

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Conclusions

Pelvic fixation in patients undergoing posterior lumbar fusion is associated with increased morbidity. These patients are particularly at risk of postoperative blood transfusion likely secondary to excessive intraoperative blood loss.