

The Incidence and Predictors for 30 Day Wound Complications in Adult Deformity Spinal Fusion Surgery, An Analysis of the ACS NSQIP Database

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Introduction

Prior studies have addressed risk factors related to wound complications following spinal arthrodesis, but few have utilized large-scale, multi-institutional databases. In addition, the predictors for wound complications following adult deformity surgery have not been well defined.

Methods

This was a retrospective analysis of prospectively collected data from the NSQIP database between 2005 and 2012. Inclusion criteria was patients > 18 years old undergoing ADS. Patient baseline information, ASA score, operative time, postoperative complications, and length of stay (LOS) were obtained for all patients. Data analysis used multivariate logistic regression analysis with significance defined as $p < 0.05$. Odds ratio (OR) was calculated with a 95% confidence interval.

Results

In total, 4,793 patients with elective spinal deformity surgery were included, with complications occurring in 102 patients (2.13%). This incidence was significantly highest in patients who underwent posterior arthrodesis (2.97%), fusion to pelvis (4.65%), or osteotomy (4.31%). In contrast, anterior arthrodesis yielded lower risk (0.90%) than those who did not undergo this approach. According to the multivariate analysis, preoperative albumin, operative time greater than 4 hours, and preoperative bleeding disorder were significant independent predictors of early postoperative wound complication. C-statistic = 0.730.

Learning Objectives

Our objective was to analyze predictors for wound complications in this population. We hypothesize that the incidence for wound complications within 30 days after adult deformity spinal surgery will be low, but associated with important patient and operative characteristic

Conclusions

The baseline 30-day incidence for this complication in adult spine surgery is low. The predictors for wound complication are multifactorial, and include both preoperative and intraoperative variables. This data should provide a step toward developing quality improvement activities aimed at reducing complications in high risk adults.

Independent Risk Factors for Wound Complications as Identified by a Multivariate Analysis (N = 1759)				
Variable	Odds Ratio	95 CI		p value
Preoperative Albumin	0.409	0.22	0.76	0.005
Operative Time > 4 Hours	3.031	1.57	5.86	0.001
Bleeding Disorder	14.169	5.21	38.54	<.0001