



Predictors of Unplanned Readmission for Adults Undergoing Elective Lumbar Spine Fusion

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Introduction

Elective lumbar fusion is being performed with greater frequency in recent years. However, little is known as to what factors are predictors of readmission in this population. Readmissions and complications are not only detrimental to operative success and outcomes, but also pose a significant strain on healthcare resources.

Methods

Adult patients 18 years of age and older undergoing elective lumbar spine fusion from 2011-2012 were identified by CPT (Current Procedural Terminology) code in the ACS NSQIP database. Patients with unplanned readmissions were identified. Patient demographics and operative complications were analyzed. Univariate statistical analysis was performed and multivariate model was performed to analyze independent patient characteristics and comorbidities that lead to unplanned readmissions with $p < 0.05$ being significant. Odds ratio were performed with 95% confidence interval.

Results

National readmission rate for elective lumbar spinal fusion was 5.2%. Patients with history of cardiac surgery, peripheral vascular disease, length of stay > 5 days and multilevel fusions were readmitted with greater frequency. Patients with 1 or more perioperative complications were also more likely to be readmitted (59.5% vs 22.3% not readmitted, $p < 0.0001$). Multivariate model revealed insulin dependent diabetes (OR=2.3), bleeding disorder (OR=3.3), LOS >5 days (OR=1.7), and multilevel fusion (OR=1.4) to be significant independent factors for unplanned 30 day readmission in this cohort.

Conclusions

Patients with medical comorbidities such as diabetes and bleeding disorders are at a significantly higher risk of being readmitted. This information may assist spine surgeons when performing risk stratification of patients at risk of readmission.

Learning Objectives

Our objective was to analyze risk factors for unplanned readmission in adults undergoing adult deformity surgery. Our hypothesis is that patients with certain comorbidities and perioperative complications are at increased risk for unplanned readmissions after undergoing elective lumbar spine fusion.

Independent Predictors for Readmission				
Variable	Adjusted Odds Ratio	95% CI		P
Insulin Dependent Diabetes vs. None	2.256	1.272	4.002	0.004
Insulin Independent Diabetes vs. None	0.875	0.489	1.563	0.1257
Bleeding Disorder	2.579	0.954	6.975	0.062
Recent Weight Loss	8.104	0.717	91.591	0.091
Length of Stay Greater than 5 Days	1.558	1.02	2.382	0.040
Multilevel Fusion vs. Single	1.498	1.032	2.175	0.034
Total RVU	0.994	0.985	1.002	0.1271
Smoker	0.672	0.409	1.106	0.1178
Pulmonary Comorbidity	1.752	0.898	3.418	0.1002
Peripheral Vascular Disease	2.341	0.659	8.314	0.1882