



Frailty Index is a Significant Predictor of Complications and Readmissions Following Posterior Lumbar Fusion

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Introduction

Frailty index is a measure of health status in aging individuals and is an important factor that can be used to predict morbidity and mortality. The Modified Frailty Index (mFI) has been shown to be useful in predicting complications and outcomes. The mFI has not been studied in patients undergoing elective posterior lumbar fusions.

Methods

This was a retrospective analysis of prospectively collected data from the ACS NSQIP database of patients > 18 years old undergoing elective PLF, PLIF, TLIF or PLF with PLIF or TLIF between 2005 and 2012. A previously described mFI was calculated based on number of positive factors out of 11 (based on medical comorbidities). Complications, operative factors, patient factors and mortality were analyzed using univariate and multivariate logistic regression analysis with significance defined as $p < 0.05$. Odds ratio (OR) was calculated with a 95% confidence interval.

Results

In 6094 patients, mean mFI was 0.087 (0-0.54). Increasing mFI score was associated with increased complications, reoperations, LOS>5, and morbidity ($p<0.05$). As mFI score increased from 0.27 (3/11 variables present) to = 0.36 (4/11) the rate of any complication increased from 26.8% to 35% ($p<0.0001$), sepsis 2.4% to 5.2% ($p<0.0001$), wound complications 4.4% to 6.5% ($p<0.0001$), unplanned readmissions 4.7% to 20% ($p=0.02$) and urinary tract infection (UTI) 4.1% to 10.4% ($p<0.0001$). An mFI of \geq to 0.36 was an independent predictor of any complication (OR 2.2,1.3-3.7), sepsis (OR 6.3,1.8-21), wound complications (OR 2.9,1.1-8.2), prolonged LOS (OR 2.3,1.4-3.7) and readmission (OR 4.3,1.5-12.7).

Learning Objectives

By the conclusion of this session, participants should be able to understand mFI as a way to ascertain risk in patients undergoing posterior lumbar fusions.

Conclusions

Patients with higher mFI scores (= 4/11 variables) are at significantly increased risk of major complications, readmissions and prolonged LOS following elective posterior lumbar fusion. These findings highlight the importance of sound preoperative work-up during surgical planning and this predictive model may be a useful tool during risk stratification.