

Decompression Versus Fusion for Grade 1 Lumbar Spondylolisthesis – A Multicenter Assessment of 12-Month Patient Reported Outcomes Using the Quality Outcomes Database

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Introduction

The ideal treatment strategy for patients with degenerative lumbar spondylolisthesis remains a topic of debate. The authors compared patient reported outcomes for patients undergoing one or two level decompression versus those undergoing one level fusion for grade 1 lumbar spondylolisthesis.

Methods

A retrospective analysis of prospectively collected Quality Outcomes Database (QoD) data was performed at twelve participating centers. Patients were included who underwent either one to two level lumbar decompression or one level lumbar fusion for a diagnosis of degenerative grade 1 spondylolisthesis between July 1, 2014 and June 30, 2016. A variety of demographic, comorbidity, and patient reported outcome measures were collected and analyzed.

Results

A total of 599 patients met criteria for analysis, with 462 undergoing fusion and 137 undergoing decompression. On univariate analysis, older patients, patients with lower body mass index, men, Medicare enrollees, diabetics, patients without depression, patients with predominantly back pain, individuals with preoperative motor or ambulation deficits, patients with symptom duration less than 3 months, patients with more formal education, and the unemployed were more likely to receive decompression compared to fusion (all p values <0.05). Patients undergoing fusion had significantly higher intraoperative blood loss, surgical length, and length of stay compared to decompression (all p values <0.001). At 12-months postoperatively, patients undergoing fusion had greater improvements in NRS back pain (-4.1 ± 3.0 vs. -2.7 ± 3.4 , $p=0.007$), ODI (-26.3 ± 18.8 vs. -18.5 ± 20.1 , $p=0.001$) and EQ5D (0.25 ± 0.2 vs. 0.17 ± 0.2 , $p=0.004$) compared to decompression. In our multivariate regression models, fusion remained associated with greater 12-month improvement in NRS back pain ($p=0.042$) and ODI ($p=0.004$) compared to decompression alone.

Conclusions

Based on data derived from a large, multi-institutional cohort of QoD patients, single level fusion provides greater improvements in NRS back pain and ODI at 12-months than one or two level decompression in patients with grade 1 degenerative spondylolisthesis.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of patient reported outcome measures in the analysis of surgical procedures, 2) Discuss, in small groups, the approach for procedure selection in management of grade 1 spondylolisthesis, 3) Identify an effective treatment for grade 1 spondylolisthesis

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