

Comparative Analysis of Decompression Versus Decompression and Fusion for Surgical Management of Lumbar Spondylolisthesis

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Introduction

When symptomatic lumbar stenosis involves spondylolisthesis, many surgeons consider it an indication to include fixation. However, after multiple studies, including two randomized controlled trials, there is no consensus to definitive treatment of lumbar spondylolisthesis.

Methods

Multicenter, prospectively collected data from the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) database was used to compare 30-day outcomes and complications for decompression alone vs decompression and fusion in the treatment of lumbar spondylolisthesis from 2005-2015. Univariate and multivariate logistic regression models were used to analyze the effect of surgical type on multiple outcome variables.

Results

The ACS NSQIP database included 9606 patients with surgically managed lumbar spondylolisthesis. Of these, 907 were managed with decompression alone, while 8699 had both decompression and fusion. Patients in the fusion cohort tended to be younger ($p < 0.001$) and smokers ($p = 0.01$). The percent unplanned return to OR was 3.02% in the fusion group, compared with 1.02% in the decompression-only group ($p = 0.011$). The percent of minor adverse events was 12.8% in the fusion group vs 4.9% in the decompression group ($p < 0.001$). There was no statistically significant difference in 30-day mortality, major adverse events or 30-day readmission.

Conclusions

The data show a clear bias towards fusion in degenerative spondylolisthesis. However, even with this, the 30-day outcome measures of unplanned return to the OR, as well as minor adverse events, were statistically significantly higher for patients undergoing a fusion compared with decompression alone. These findings, combined with similar functional outcomes in recent trials, could influence decision making in the surgical management of lumbar spondylolisthesis. This database study indicates that further long-term investigation is warranted, but that decompression alone may be associated with less morbidity in properly selected patients.

Learning Objectives

By the conclusion of this session, participants should be able to 1.) identify preoperative factors that are related to decompression alone vs decompression and fusion in degenerative lumbar spondylolisthesis and 2.) identify which post-operative adverse events are correlated with fusion vs decompression alone in degenerative lumbar spondylolisthesis

References

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