Outcomes following Lumbar Laminectomy With and Without Instrumented Fusion for Lumbar Spinal Stenosis

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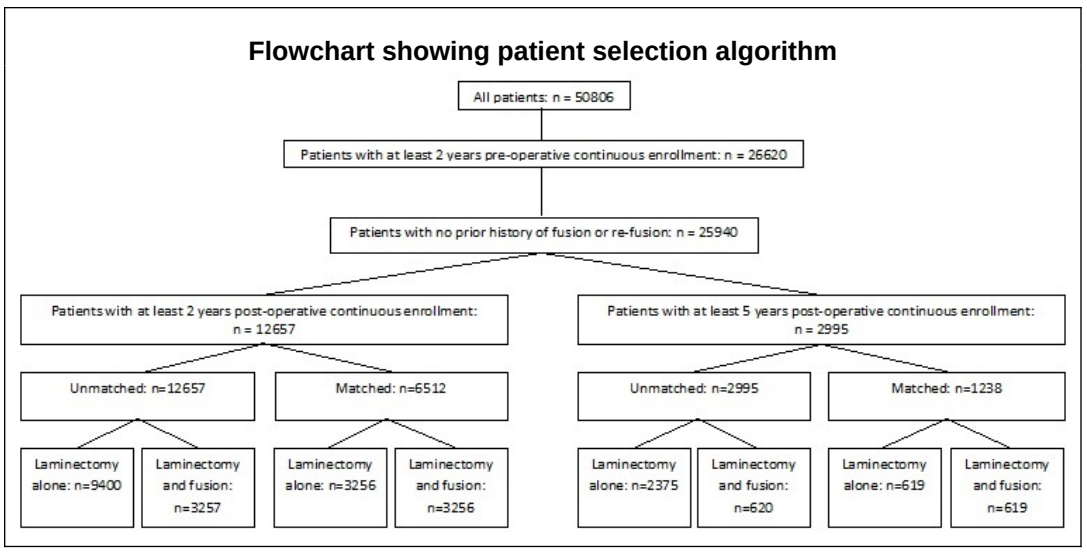
Introduction

There are no uniform guidelines for which procedure (laminectomy alone, laminectomy with instrumented fusion or laminectomy with non-instrumented fusion) to perform for the treatment of spinal stenosis. The goal of the current study was to 1) compare the complication and long-term reoperation rates; and 2) quantify the healthcare resource use associated with the different spinal interventions.

Methods

Reuter's MarketScan database was utilized to identify patients who underwent spinal stenosis surgery between 2000 and 2009. Patient cohorts consisted of those with at least 2 years (n=12,657) and 5 years (n=2,995) of post-operative follow-up and had a primary diagnosis of spinal stenosis without a concurrent diagnosis of spondylolisthesis.



Results

Complication rates during the initial procedure hospitalization ($p<0.001$) and at 90 days ($p<0.001$) were significantly higher for those who underwent laminectomy with fusion compared to laminectomy alone. There were no significant differences in complication rates between those undergoing instrumented vs. non-instrumented fusion at any time point. Long-term reoperation rates (>=5 years) were not significantly different between the laminectomy alone and decompression with fusion groups ($p=0.44$), and those with instrumented vs. non-instrumented fusions (17.4% vs. 12.2%, $p=0.11$). However, those who underwent instrumented fusions had significantly higher rates of fusion revisions ($p=0.002$). Patients who underwent decompressions with fusions had significantly higher hospital costs for the index procedure compared to those who only had a laminectomy ($34,501 vs. $11,799, $p<0.001$). Those receiving instrumentation also had significantly higher costs than those without instrumentation ($p<0.001$). However, the total hospital, outpatient, and medication charges did not differ significantly between any of the groups.

Conclusions

For patients with spinal stenosis, laminectomy alone carries lower complications with similar reoperation rates. If fusion is warranted, use of arthrodesis without instrumentation is associated with decreased costs and similar long-term complication and reoperation rates.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of determining the efficacy of the various spinal procedures for the treatment of spinal stenosis, 2) Discuss, in small groups the differences in complications, reoperation rates, and cost between the different spinal stenosis surgeries, 3) Identify an effective treatment for the treatment of spinal stenosis which achieves comparable outcomes with the least amount of cost.