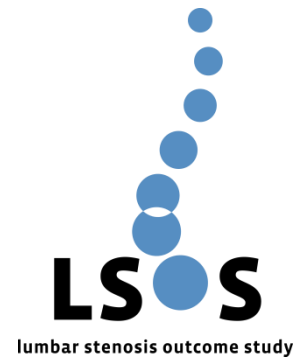


Abstract

Does preoperative degenerative spondylolisthesis influence outcome in degenerative lumbar spinal stenosis? A Swiss prospective multicenter cohort study



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Purpose

The aim of our study is to compare clinical outcomes in patients with lumbar spinal stenosis with and without degenerative spondylolisthesis (DS; non-DS) who underwent decompression surgery on only one or two adjacent levels without additional fusion.

Methods/Materials

For this analysis, we use data from the Lumbar Stenosis Outcome Study (LSOS), a prospective cohort study at eight medical centers in Switzerland. The main outcomes of this study are changes in Spinal Stenosis Measure (SSM) symptoms score, SSM function score, and quality of life (EQ-5D-EL sum score) over time. These outcome parameters are measured at baseline, and at 6- and 12-month follow-up. To obtain an unbiased result on the effect of DS versus non-DS we choose matching techniques relying on propensity scores. The latter is calculated based on a logistic regression model including relevant confounders. Further additional outcomes of interest are raw changes in main outcomes and in Roland and Morris Disability Questionnaire from baseline to 6 and 12 months.

Results

For this study, 133 patients met the inclusion criteria, 32 with accompanying DS and 101 without DS. After propensity score matching, 32 patients were left in each group. In the matched cohort, the estimated difference in SSM symptoms score changes in patients with DS versus non-DS for from baseline to 6 months is 0.08 (95% CI -0.34 to 0.49) and to 12 months 0.16 (-0.23 to 0.55). For changes in SSM function score, the estimated difference from baseline to 6 months is -0.01 (-0.39 to 0.37), and to 12 months 0.08 (-0.33 to 0.50). Differences in changes between groups in EQ-5D-EL sum score are estimated to be -7.19 (-15.24 to 0.86) and -4.88 (-13.29 to 3.54) from baseline to 6 and 12 months. None of the group differences between the non-DS and the DS group are statistically significant. All matched patients improve over time in all additional outcomes.

Conclusion

Our study demonstrates that among the patients with degenerative lumbar spinal stenosis, both groups – with and without degenerative spondylolisthesis – distinctively take advantage of decompression without fusion. Our results provide an additional piece of evidence that DS compared to non-DS does not worsen the outcome for the selected patient population treated by decompression alone.