TITLE: Addition of Fusion to Decompression for Grade I Degenerative Lumbar Spondylolisthesis Is Associated with Greater Patient-Reported Outcome Improvements at 24-Month Follow-up: A Multicenter Study Using the Quality Outcomes Database.

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ABSTRACT:  
Background: Extensive investigation has not ascertained the ideal surgical management of grade 1 lumbar spondylolisthesis. Using the large, multicenter, prospectively collected Quality Outcomes Database (QOD), we compared 24-month outcomes for patients undergoing decompression alone versus decompression and fusion.

Methods: Patients undergoing single-level surgery from 7/1/2014 through 6/30/2016 were identified. The primary outcome measure, 24-month Oswestry Disability Index (ODI) change, was analyzed with univariate and multivariable linear regression. EQ-5D scores, numerical rating scale (NRS) back and leg pain scores, and North American Spine Society patient satisfaction scores were also analyzed.

Results: Of the 608 patients (82.4% with at least 24-month follow-up) who met the inclusion criteria, 140 (23.0%) underwent decompression alone and 468 (77.0%) underwent decompression and fusion. The 24-month change in ODI was significantly greater in the fusion group than the decompression-only group (-25.2±20.1 vs. -15.8±19.8, p<0.001). Fusion remained independently associated with 24-month ODI change in our multivariable model (β=-9.82, 95% CI -15.58 to -4.06, p=0.001). Patients in the fusion group were significantly more likely to present with back pain as the dominant symptom (41.5% vs. 25.7%, p<0.001), to reach minimal clinically important difference (12.8 points) in ODI at 24 months (72.5% vs. 56.6%, p=0.002), and to experience significantly greater NRS back pain improvement at 24-month follow-up (-4.0±3.0 vs. -2.0±3.9, p<0.001).

Conclusions: The results of our study suggest that decompression plus fusion may offer superior outcomes to decompression alone in patients with grade 1 lumbar spondylolisthesis at 24 months. Longer-term follow-up is warranted to assess whether this effect is sustained.