Lumbar Arthrodesis Is a Viable Option for DDD

Written by Mary Beth Nierengarten

Lumbar arthrodesis for the treatment of low back pain from degenerative disc disease (DDD) in patients for whom medical therapy is not successful remains controversial. Previous work has suggested that the outcomes of lumbar fusion for low back pain from DDD are inferior to those in patients with a condition with instability, such as spondylolisthesis. Owoicho Adogwa, MD, Duke University, Durham, North Carolina, USA, presented the results of the Functional Outcomes After Lumbar Spine Fusion Between Patients With Spondylolisthesis and Those With Degenerative Disc Disease study [Moojen W et al. *Spine*. 2014] that evaluated the 2-year change in patient-reported outcomes after lumbar arthrodesis for DDD and patient-reported outcomes after lumbar arthrodesis between patients with grade 1 spondylolisthesis and DDD.

The nationwide, multicenter study included a total of 1741 patients, 1031 with DDD and 636 with grade 1 spondylolisthesis. Patient demographics were similar in both groups. They were aged an average of 55 years, and the body mass index was about 30 kg/m^2. A higher proportion of men were diagnosed with DDD than with grade 1 spondylolisthesis (53.70% vs 37.94%, $P = .056$).

The study included patients aged between 18 and 70 years with low back pain or radiculopathy, and evidence of DDD or grade 1 spondylolisthesis on magnetic resonance imaging. Exclusion criteria were prior back surgery; severe coexisting pathology, including rheumatoid arthritis, osteoarthritis, or metabolic bone disease; and involvement in an active lawsuit for medical or workers' compensation.

Investigators prospectively collected data between January 2003 and December 2010 in a multicenter registry on patient and surgical variables, pain measures, and functional status in patients undergoing lumbar interbody fusion for a primary diagnosis of grade 1 spondylolisthesis or DDD. This is a retrospective analysis of this database.

At the 1- and 2-year follow-up, there were comparable improvements in the visual analog score for back pain and the Oswestry Disability Index scores in the DDD and spondylolisthesis groups (Table 1).

The study also found that significantly more patients with grade 1 spondylolisthesis had a postsurgical pulmonary embolism or deep vein thrombosis compared with patients with DDD (6 vs 0; $P = .014$), and needed a reoperation (19 vs 8; $P = .001$). No difference was found between the 2 groups for other complications.

Table 1. Patient-Reported Outcomes at 1 and 2 Years After Surgery

	DDD (n = 636)	Spondylolisthesis (n = 636)	*P* Value
One-year follow-up			
BP-VAS	3.50±3.54	3.70±3.80	.490
LP- VAS	1.68±2.95	4.01±2.76	.004
ODI	21.30±23.26	21.00±20.84	.728
Two-year follow-up			
BP-VAS	3.90±2.75	3.2±3.94	.560
LP- VAS	1.16±3.04	3.98±2.79	.001
ODI	16.70±21.93	17.10±21.13	.690

Data presented as mean±SD.

BP, back pain; DDD, degenerative disc disease; LP, leg pain; ODI, Oswestry Disability Index; VAS, visual analog scale.

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The authors concluded that in patients with symptomatic DDD, lumbar arthrodesis provided significant improvement in low back pain and functional disability, and thus should be considered a viable option for patients whose back pain has not been treated successful with medical therapy.

Scientific Advisor Note: The patient demographics for the 2 groups were not presented. The higher rate of thromboembolic events in the spondylolisthesis group may be explained by differences in the demographics, such as being older or having more comorbidities, compared with the DDD group. Furthermore, the conclusions by these authors must be balanced against previous results from other studies demonstrating comparable outcomes between operative and nonoperative treatment, and against the fact that this study compared 2 different diagnoses, not 2 different treatments.

MRI and Standing Lateral Radiographs in Diagnosing L4-L5 LDS

Written by Mary Beth Nierengarten

Magnetic resonance imaging (MRI) and standing lateral and flexion-extension (SLFE) radiographs should be obtained in patients thought to have L4-L5 lumbar degenerative spondylolisthesis (LDS). Benjamin D. Kuhns, MS, The Cleveland Clinic, Cleveland, Ohio,