

Lumbar Fusion for Symptomatic Mechanical Disc Collapse without Stenosis Improves Pain, Disability, and Quality of Life: Rethinking the Debate on Degenerative Disc Disease (DDD)

Matthew J. McGirt MD; Clinton J. Devin MD; Silky Chotai MD; Deborah Pfortmiller; Mohamad Bydon MD; Steven D. Glassman MD; Anthony L. Asher MD FACS

Introduction

The efficacy of lumbar fusion for degenerative disc disease (DDD) without stenosis remains unclear and highly debated by physicians, payers, and policy makers. Many patients with medically refractory mechanical axial back pain and significant lumbar disc height collapse are denied access to fusion procedures by their respective payer policies. Utilizing a standardized definition for DDD, we set out to determine if lumbar fusion was associated with improved patient-reported health benefits in a prospective nationwide registry.

Methods

Quality Outcomes Database (QOD) registry collects one-year patient-reported outcomes (PROs) after surgical care for six lumbar diagnosis groups. We queried all surgical cases that were enrolled under the DDD diagnosis group “symptomatic mechanical disc collapse” defined a priori as reproducible mechanical axial back pain with >50% disc height loss without stenosis or listhesis proven to be medically refractory >3months. The relative prevalence, safety, and effectiveness of surgery for symptomatic mechanical disc collapse was assessed.

Results

7618 patients from 74 hospitals in 26 U.S. states were enrolled and completed 12month PROs. Symptomatic mechanical disc collapse represented the minority of these surgical cases at N2QOD hospitals [42(0.6%)],Table 1. All cases underwent singlelevel fusion and associated with mean EBL(327cc), length of stay(3.5days), discharge to inpatient rehab(12%), 30-day morbidity(9%) and 90-day all-cause readmission(9%),Table 2. Lumbar fusion resulted in 12month improvement in back pain(BPNRS: 8 vs 5.3,p<0.001); leg pain(LP-NRS:6.5 vs 4.3,p<0.001); disability(ODI:54 vs 42,p<0.001); and quality of life(EQ5D:0.49 vs 0.59,p<0.005. Postoperative return to work reached 66% at 3mo and 100% by 12month.

Conclusions

Lumbar fusion for symptomatic mechanical disc collapse without stenosis or listhesis represented the minority of surgical practice at the 74 N2QOD centers between 2010 and 2015. Those patients undergoing lumbar fusion for this narrowed definition of DDD experienced improvements in all measured domains of health, suggesting lumbar fusion is an effective treatment for back pain arising from mechanical disc collapse.

Learning Objectives

DDD patients undergoing fusion surgery have come under great scrutiny by physicians, patients, insurance companies, and policy makers, with the recent publications in a high impact journal by 2 independent groups coming to opposing conclusions. In this study, we attempted to answer the elusive question, “Does the lumbar spinal fusion improve pain, disability, and quality of life in patients with chronic discogenic back pain?” The conclusion from this study indicates that fusion improves back and leg pain, lowers disability, increases quality of life, and enables patients to go back to work.

[Default Poster]