

Lumbar Fusion Results Related to Diagnosis

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Abstract

Study Design

Pain outcome and functional outcome after primary lumbar fusion surgery were determined by a self-assessment questionnaire. The responses were correlated with various clinical parameters.

Objectives

To determine the result of fusion surgery among patients in various diagnostic groups using semiquantitative outcome scales.

Summary of Background Data

Most previous studies on the results of primary lumbar fusion have reported the presence of pain, but few have addressed function outcomes. Results of a literature review were inconclusive as to whether a patient's diagnosis is a predictor of improved results.

Methods

During the 3-year period from 1988 to 1990, 165 patients underwent a primary lumbar fusion procedure. They had a chart and radiograph review and were categorized into five major diagnostic groups: 1) pediatric, 2) grade I-II spondylolisthesis (low-slip), 3) grade III-IV spondylolisthesis (high-slip), 4) degenerative disc disease, and 5) postdiscectomy. At a follow-up period of 5 years (mean) after the fusion, patients were mailed a questionnaire in which they described their pain and functional status before and after their lumbar fusion surgery. Questionnaires were returned by 92% of the patients. The questionnaire scores, complications, and revision procedures were grouped by patient diagnosis and analyzed.

Results

Patient satisfaction with the results of primary lumbar fusion ranged from 69% (for the postdiscectomy group) to 100% (for the pediatric and high-slip groups). For all diagnostic groups, lumbar fusion resulted in a significant decrease in back pain and leg pain (visual analog scale), which was maintained throughout the follow-up period. For back pain, the pediatric and high-slip groups showed significantly more improvement than the degenerative disc disease or postdiscectomy groups. Leg pain among patients in the pediatric and high-slip groups was significantly more improved than leg pain among patients in the low-slip, degenerative disc disease, or postdiscectomy groups. There was no deterioration of pain scores during the follow-up period. After fusion, all groups had a significant decrease in Oswestry disability scores; patients in the pediatric and high-slip group had significantly more improvement than patients in the degenerative disc disease or postdiscectomy groups. High- and low-slip groups had a significant improvement in their pain drawing score. Medication use was substantially reduced in all groups. After fusion, a lack of improvement in back pain score or disability score was significantly correlated with pseudarthrosis.

Conclusions

The outcome of primary lumbar fusion surgery was decreased pain and increased function for the majority of patients in all five diagnostic categories. The amount of improvement varied by diagnostic group. Patients with developmental conditions showed greater improvement than patients with degenerative conditions.