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[Intervention Review]

Surgery for degenerative lumbar spondylosis

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ABSTRACT

Background

Surgical investigations and interventions account for large health care utilisation and costs, but the scientific evidence for most procedures is still limited.

Objectives

Degenerative conditions affecting the lumbar spine are variously described as lumbar spondylosis or degenerative disc disease (which we regarded as one entity) and may be associated with back pain and associated leg symptoms, instability, spinal stenosis and/or degenerative spondylolisthesis. The objective of this review was to assess current scientific evidence on the effectiveness of surgical interventions for degenerative lumbar spondylosis.

Search methods

We searched CENTRAL, MEDLINE, PubMed, Spine and ISSLS abstracts, with citation tracking from the retrieved articles. We also corresponded with experts. All data found up to 31 March 2005 are included.

Selection criteria

Randomised (RCTs) or quasi-randomised trials of surgical treatment of lumbar spondylosis.

Data collection and analysis

Two authors assessed trial quality and extracted data from published papers. Additional information was sought from the authors if necessary.

Main results

Thirty-one published RCTs of all forms of surgical treatment for degenerative lumbar spondylosis were identified. The trials varied in quality: only the more recent trials used appropriate methods of randomization, blinding and independent assessment of outcome. Most of the earlier published results were of technical surgical outcomes with some crude ratings of clinical outcome. More of the recent trials also reported patient-centered outcomes of pain or disability, but there is still very little information on occupational outcomes. There was a particular lack of long term outcomes beyond two to three years. Seven heterogeneous trials on spondylolisthesis, spinal stenosis and nerve compression permitted limited conclusions. Two new trials on the effectiveness of fusion showed conflicting results. One showed that fusion gave better clinical outcomes than conventional physiotherapy, while the other showed that fusion was no better than a modern exercise and rehabilitation programme. Eight trials showed that instrumented fusion produced a higher fusion rate (though that needs to be qualified by the difficulty of assessing fusion in the presence of metal-work), but any improvement in clinical outcomes is probably marginal, while there is other evidence that it may be associated with higher complication rates. Three trials with conflicting results did

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not permit any conclusions about the relative effectiveness of anterior, posterior or circumferential fusion. Preliminary results of two small trials of intra-discal electrotherapy showed conflicting results. Preliminary data from three trials of disc arthroplasty did not permit any firm conclusions.

Authors' conclusions

Limited evidence is now available to support some aspects of surgical practice. Surgeons should be encouraged to perform further RCTs in this field.

PLAIN LANGUAGE SUMMARY**Surgery for degenerative lumbar spondylosis**

Degeneration of the lumbar spine is described as lumbar spondylosis or degenerative disc disease and may lead to spinal stenosis (narrowing of the spinal canal), vertebral instability and/or malalignment, which may be associated with back pain and/or leg symptoms. This review considers the available evidence on the procedures of spinal decompression (widening the spinal canal or laminectomy), nerve root decompression (of one or more individual nerves) and fusion of adjacent vertebrae. There is moderate evidence that instrumentation can increase the fusion rate, but any improvement in clinical outcomes is probably marginal. The effectiveness of intra-discal electrotherapy (IDET) remains unproven. Only preliminary results are available on disc replacement and it is not possible to draw any conclusions on this subject.