Intraoperative epidural methylprednisolone in patients with minimally invasive single-level lumbar decompression

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Introduction

Low back pain is one of the most common reasons for people to seek medical attention in the United States. Minimally invasive single-level lumbar decompression (microdiscectomy) relieves low back pain by removing herniated disc material and enlarging the spinal canal space via an endoscopic procedure. Many patients who undergo lumbar disc surgery experience postoperative back and radicular pain associated with nerve root inflammation, which may delay patient recovery and worsen quality of life.

Intraoperative epidural steroid injection (ESI) is currently used by many surgeons to ideally improve pain outcomes without increasing the risk of complication. However, few prospective studies examine its effectiveness, and evidence for long term pain reduction is inconclusive. Studies have demonstrated reduced low back pain and radicular pain on short term intervals up to one week, reduced post-operative hospital stay, and reduced use of analgesic medication. Others have shown no difference in medication use or pain outcomes, particularly after three weeks.

This study aims to evaluate disability outcomes in addition to pain level and to assess long term follow-up. If evidence shows a lack of pain improvement, consideration should be given to minimize excess treatment and cost.

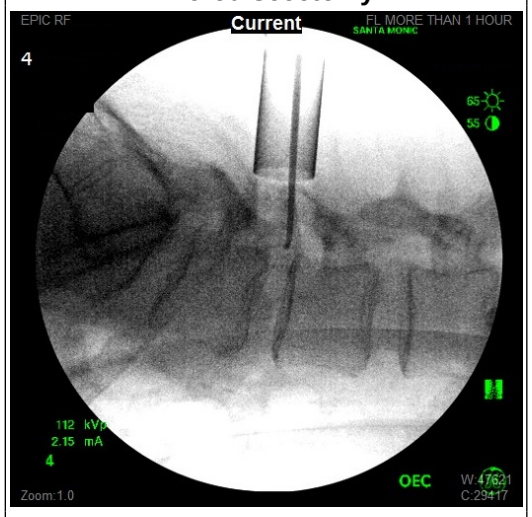
Lumbar Disc Herniation

L4-5 herniated disc impinging on the L5 nerve root, causing low back pain and radiculopathy

Methods

100 patients with lumbar disc herniation or spinal stenosis who presented for minimally invasive single-level lumbar decompression over one year were randomized to receive intraoperative methylprednisolone injection or saline irrigation in the epidural space at the closure of the procedure. Postoperative pain level and function were evaluated using Visual Analog Scale (VAS) and Oswestry Disability Index (ODI) at one week, three months, and six months.

Microdiscectomy



Microdiscectomy performed with microscope to evacuate herniated disc material around spinal cord

Results

Preliminary analysis of 16 patients at one week showed that ODI average improved 24.7% for nonsteroid group and worsened by 0.9% for steroid group with no significant difference between groups (p=.165). VAS for current pain improved 26.2% for nonsteroid group and 12.4% for steroid group with no significant difference between groups (p=.651).

Conclusion

Early results are inconclusive but suggest that intraoperative corticosteroid does not significantly reduce pain or disability at one week. Data analysis is ongoing to evaluate effectiveness of intraoperative ESI. A large multicenter randomized controlled trial is necessary to improve current knowledge. Further areas of study include varying dose of corticosteroid, or combining exercise or postoperative injection with intraoperative corticosteroid for improved pain outcomes.

References

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