

Cost Effectiveness of Repeat Discectomy Versus Discectomy and Fusion for Recurrent Disc Herniation

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Introduction

The management of recurrent disc herniation is an ongoing topic of debate in spine surgery. The literature reports recurrence rates after first surgery of 6-10%, with recurrence rates after a repeat discectomy as high as 30% in some series. Some surgeons elect to manage patients with recurrent disc herniations with a repeat discectomy, while others elect to proceed with a discectomy and fusion. Given increased focus on resource utilization in healthcare, surgeons will be expected to consider long-term cost effectiveness when comparing treatment options. To our knowledge no study has examined the differences in long-term cost effectiveness of discectomy versus discectomy and fusion for the treatment of recurrent disc herniation.

Results

Over a wide range of sensitivity analyses, which included procedural cost, patient reported outcome, complication rates, reoperation rates, and failure rates, discectomy appears to be more cost effective than fusion.

Methods

A Markov model was used to evaluate the cost effectiveness of discectomy versus discectomy and fusion in patients with recurrent disc herniation after an index single level lumbar discectomy. Transition probabilities were estimated from several randomized control trials and retrospective case series reporting the costs and outcomes following lumbar discectomy and discectomy with fusion. Costs were based on the average Medicare reimbursement for lumbar discectomy and single level lumbar fusion. Rigorous sensitivity analysis was completed for all variables.

Conclusions

Based on current data, discectomy appears to be more cost effective than discectomy and fusion for recurrent lumbar disc disease. Furthermore, discectomy also appears to afford a better clinical outcome. This suggests that in the absence of clear indicators of instability, including spondylolisthesis and facet subluxation, it may be advantageous to offer a patient with recurrent lumbar disc disease a repeat discectomy.

Learning Objectives

By the conclusion of this session, participants should be able to use Markov modeling to assess the relative cost-effectiveness of various neurosurgical procedures.

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