

Comparison of the Minimally Invasive and Conventional Open Surgery Approach in the Treatment of Lumbar Stenosis: A Systematic Review and a Meta-Analysis

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Abstract

Introduction: Minimally invasive surgery (MIS) is increasingly used in the treatment of lumbar stenosis. However, it is still not clear if the employment of minimally invasive surgical techniques can achieve superior clinical outcomes compared to standard open laminectomy. **Materials and Methods:** An extensive literature review regarding the clinical outcome, safety, and efficiency of MIS and standard open surgery (OS) in the treatment of lumbar stenosis was conducted on Medline, Cochrane, EMBASE, and Google Scholar databases up to 19 August 2016. **Results:** Sixteen studies that enrolled a total of 1580 patients with surgically-indicated lumbar stenosis were identified; 793 patients underwent MIS and 787 patients underwent conventional OS. No significant difference was found in the improvement of Oswestry Disability Index (ODI) ($P = 0.718$) and operation time ($P = 0.322$) between patients from different treatment groups. MIS was associated with better visual analogue scale (VAS) for back pain ($P = 0.01$), shorter length of hospital stay ($P < 0.001$), and lower blood loss ($P < 0.001$). **Conclusion:** Our findings indicate that both MIS and standard OS can effectively manage patients with lumbar stenosis and lead to comparable clinical outcomes. Further studies are necessary to evaluate MIS with different types of conventional surgery for lumbar stenosis.

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