



No differences between physiotherapy and decompression surgery for patients considered surgical candidates for lumbar spinal stenosis

Synopsis

Summary of: Delitto A, Piva SR, Moore CG, Fritz JM, Wisniewski SR, Josbeno DA, et al. Surgery versus nonsurgical treatment of lumbar spinal stenosis: a randomized trial. *Ann Intern Med.* 2015;162:465-473.

Question: Does surgical decompression for patients with lumbar spinal stenosis result in greater improvement in self-reported physical functioning when compared with physiotherapy? **Design:** A randomised, controlled trial with concealed allocation and 2-year follow-up. **Setting:** One academic medical centre in Pennsylvania, USA. **Participants:** Patients with a confirmed diagnosis of lumbar spinal stenosis and presence of neurogenic claudication considered by a spine surgeon to be candidates for surgical decompression. Patients also had to consent to surgery. Key exclusion criteria included: being <50 years old, signs of serious dementia, severe or recent history of myocardial infarction, concomitant spondylolisthesis or compression fractures requiring surgery, or cancer. Randomisation allocated 87 patients to surgery and 82 to physiotherapy. **Interventions:** Surgical treatment included decompressive laminectomies, partial facet resection, and neuroforaminotomies. The physiotherapy program was prescribed for 6 weeks, with two sessions per week, and consisted of four categories of exercises: lumbar flexion exercises, general conditioning exercises, lower extremity strengthening exercises, and lower-extremity flexibility exercises. In addition, the patients received education to avoid hyperextension of the lumbar spine and a booklet with information about home exercises. **Outcome measures:** The

primary outcome was the physical function score on the Short Form-36 Health Survey (0 to 100 scale) after 2 years. **Results:** A total of 147 patients (87%) completed the 2-year follow-up (n = 74 surgery and n = 73 physiotherapy). All but two patients allocated to the surgery group received surgery, whereas 47 (57%) in the physiotherapy group received surgery over the study period. There was no difference in change in physical function between the groups at any time: mean improvements for the surgery and physiotherapy groups at 2 years were 22 (95% CI 17 to 28) and 19 (95% CI 14 to 25), respectively. Sensitivity analyses accounting for crossovers (57% of the physiotherapy crossed over to surgery) or intention-to-treat analyses at all points of follow-up revealed no differences between the groups. **Conclusion:** Patients with lumbar spinal stenosis who were surgical candidates and who consented to surgery achieved similar improvements in physical functioning when offered surgical decompression compared with physiotherapy.

Provenance: Invited. Not peer-reviewed.

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Commentary

Surgery for lumbar spinal stenosis is the most frequent surgical procedure for back pain. Previous observational or randomised studies investigating the effect of surgery for lumbar spinal stenosis have included a selection of non-standardised conservative treatments, including physiotherapy. They have reported that treatment with surgery is better than conservative treatment in the short term, but not in the long term.^{1,2} The study by Delitto et al is the first study to compare surgery to a structured physiotherapy intervention, and is therefore highly needed.

The results of the study showed that both patient groups improved at first follow-up (10 weeks) and continued to improve until 6 months, with no differences between the groups at any point during the 2-year study period. Comparing non-surgery to surgery is challenging, but the high rate of crossovers hampered the interpretation of the results, even though different statistical strategies were used to minimise this bias. Further, 65% of eligible patients declined to participate, mainly because they did not wish to risk the chance of being randomised to non-surgical treatment. This limited the generalisability of the study, in that patients with the most severe disability or the best candidates for surgery might not have been included in the study. The study is, however, an important step forward in the treatment of this large patient group,

and there are valuable messages for clinicians. The results suggest that patients with lumbar spinal stenosis should be offered active physiotherapy before surgery is considered. In addition, since the effects were similar between groups throughout the entire study period, patients considering surgery should be informed that the effect of surgery seems to diminish over time. Future studies should focus on defining predictors of success and failure of both interventions, plus a cost-effectiveness analysis to assist the decisions of clinicians and patients.

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