

Commentary on: A randomized controlled trial of fusion surgery for lumbar spinal stenosis (Forsth P, Ólafsson G, Carlsson T, Frost A, Borgström F, Fritzell P, et al. N Eng J Med 2016;374:1414-23)

Nancy E. Epstein

Department of Neuroscience, Winthrop Neuroscience, Winthrop University Hospital, Mineola, New York, USA

E-mail: *Nancy E. Epstein - nancy.epsteinmd@gmail.com

*Corresponding author

Received: 25 April 16 Accepted: 26 April 16 Published: 22 September 16

Abstract

Background: This article by Forsth *et al.* published in the New England Journal of Medicine entitled “A randomized controlled trial of fusion surgery for lumbar spinal stenosis” determined that decompressions alone vs. decompressions/fusions were equally effective in treating 1-2 level spinal stenosis with/without degenerative spondylolisthesis (DS). Additionally, decompression alone reduced the perioperative morbidity, while reducing the length of hospital stay (LOS), operative time, and surgical costs.

Methods: Utilizing a randomized controlled design, the efficacy of 1-2 level decompressions alone vs. decompressions with fusions for lumbar spinal stenosis with/without DS (135 patients) was assessed in 247 patients between the ages of 50–80. Outcomes were analyzed at 2 and 5 postoperative years utilizing the 6-minute walk test, and the Oswestry disability index (ODI).

Results: At 2 and 5 postoperative years, there were no significant clinical differences between the two groups (e.g., on the average ODI or 6-minute walk test). In addition, with decompressions alone, the LOS (averaging 7.4 days for fusion vs. 4.1 days for decompression alone), surgical time, and operative costs were markedly reduced. Furthermore, at 6.5 postoperative years, reoperation rates were comparable for both groups; 22% for decompression/fusion vs. 21% for decompression alone.

Conclusions: The authors concluded that at 2 and 5 postoperative years, patients with 1-2 level spinal stenosis did equally well with decompressions alone vs. decompressions with fusions with/without degenerative spondylolisthesis. This article offers a clear message for spinal surgeons; for older patients with 1-2 level spinal stenosis with/without DS, decompressions alone will typically suffice. This reduces patient morbidity along with LOS, operative time, and surgical costs.

Key Words: Comparable results, degenerative spondylolisthesis, length of stay, operative costs, spinal stenosis, surgical time

Access this article online

Website:

www.surgicalneurologyint.com

DOI:

10.4103/2152-7806.191060

Quick Response Code:



This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Epstein NE. Commentary on: A randomized controlled trial of fusion surgery for lumbar spinal stenosis (Forsth P, Ólafsson G, Carlsson T, Frost A, Borgström F, Fritzell P, et al. N Eng J Med 2016;374:1414-23). Surg Neurol Int 2016;7:S641-3. [http://surgicalneurologyint.com/Commentary-on:-A-randomized-controlled-trial-of-fusion-surgery-for-lumbar-spinal-stenosis-\(Forsth-P,-Ólafsson-G,-Carlsson-T,-Frost-A,-Borgström-F,-Fritzell-P,-et-al.-N-Eng-J-Med-2016;374:1414-23\)/](http://surgicalneurologyint.com/Commentary-on:-A-randomized-controlled-trial-of-fusion-surgery-for-lumbar-spinal-stenosis-(Forsth-P,-Ólafsson-G,-Carlsson-T,-Frost-A,-Borgström-F,-Fritzell-P,-et-al.-N-Eng-J-Med-2016;374:1414-23)/)

INTRODUCTION

For years, spinal surgeons have debated the efficacy of decompressions alone versus decompressions with fusions for 1-2 level spinal stenosis with/without degenerative spondylolisthesis (DS). In an article published by Forsth *et al.* in the *New England Journal of Medicine* entitled “A randomized controlled trial of fusion surgery for lumbar spinal stenosis,” the authors evaluated the relative efficacy of lumbar decompressive surgery versus decompressions with fusions for 1-2 level spinal stenosis with/without DS.^[4]

Certainly, this topic remains a major point of controversy as too many spine surgeons continue to offer decompressions with fusions. The recent literature indicates that decompressions for lumbar stenosis are now supplemented with fusions in over half of the cases performed.^[1] For patients with DS, fusions may accompany decompressions up to 96% of the time.^[5] Nevertheless, the data supporting the need for fusion in these patients with stenosis with/without DS remains “weak.”^[6,7] This article from the Swedish Spinal Stenosis Study (SSSS) evaluated, in a prospective randomized fashion (e.g., many prior studies were poorly designed with high dropout rates), whether decompressions vs. decompressions with fusions with/without DS correlated with improved clinical outcomes.^[4] Forsth *et al.* substantiated that this unique population of patients should be offered the “less is more” option; decompressions alone without fusion because it produces similar outcomes at 2 and 5 postoperative years while reducing morbidity, length of hospital stay (LOS), operative time, and surgical costs.

MATERIALS AND METHODS

Study design

This was a randomized, multicenter, open label, clinical superiority trial for 228 patients (5 lost to follow up) with 1-2 level lumbar stenosis with/without DS (135 patients) undergoing decompression alone versus decompression with fusion. Patients were between the ages of 50 and 80. They were selected for surgery based on magnetic resonance examinations. The extent or degree of DS was confirmed based on dynamic X-rays (slip 3 mm). Outcomes were analyzed at 2 postoperative years largely utilizing the Oswestry disability index (ODI) and the 6-minute walk test.

RESULTS

At 2 (228; 5 lost to follow up) and 5 (153 patients remaining) postoperative years, there were no significant clinical differences utilizing the ODI and 6-minute walk test between the two groups; decompressions alone

(124 patients; 4 not treated) vs. decompressions/fusions (123 patients; 10 not treated) with/without DS (average slip 7.4 mm). Complications included dural tears in 11% of patients in both groups, a comparable frequency of reoperations over a mean of 6.5 postoperative years for both populations (21% decompression vs. 22% decompression/fusion), similar medical complication rates (such as heart attack, stroke, thromboembolism; 4% for decompression vs. 3% for fusion patients), but higher infection rates following fusions (e.g., requiring antibiotics without reoperations; 4% for decompression alone vs. 10% with fusion). In addition, fusions' direct costs were on average \$6800 higher versus decompressions alone, and correlated with longer LOS (averaging 7.4 days for fusion vs. 4.1 days for decompression alone), surgical time, and operative costs. Indirect costs, however, proved to be similar for both groups.

CONCLUSIONS

Forsth *et al.* concluded that at 2 and 5 postoperative years, clinical outcomes were comparable for patients with 1-2 level spinal stenosis with/without DS irrespective of whether they underwent decompressions alone versus decompressions with fusions. Furthermore, decompressions without fusions offered reduced morbidity/adverse events, LOS, operative time, and surgical costs (saving on average \$6800/patient).^[2,3]

Clear message

With this clear message, why are so many spinal surgeons still offering fusions, particularly in older patients, for 1-2 level spinal stenosis with/without DS? Clearly, these fusions increase perioperative risks and complications resulting in longer LOS, even without considering the greater surgical/operative costs. How long will it take before this clear message trickles down through the system and benefits the geriatric patients it presently hurts? Finally, when can we look forward to fewer morbidity/mortality conferences filled with these patients who are still undergoing unnecessarily extensive fusions resulting in a multitude of adverse events? We look forward to this message getting out, and are using *Surgical Neurology International* to help tell spine surgeons across the world (we are a free download journal published in over 180 countries) that according to Forsth *et al.*, a well-written and optimally designed study, decompressions alone for 1-2 level spinal fusions with/without DS offer comparable outcomes at 2 and 5 postoperative years when compared with decompressions/fusions.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Bae HW, Rajaei SS, Kanim LE. Nationwide trends in the surgical management of lumbar spinal stenosis. *Spine* 2013;38:916-26.
2. Deyo RA, Mirza SK, Martin BI, Kreuter W, Goodman DC, Jarvik JG. Trends, major medical complications, and charges associated with surgery for lumbar spinal stenosis in older adults. *JAMA* 2010;303:1259-65.
3. Deyo RA, Martin BI, Ching A, Tosteson AN, Jarvik JG, Kreuter W, et al. Interspinous spacers compared with decompression or fusion for lumbar stenosis: Complications and repeat operations in the Medicare population. *Spine* 2013;38:865-72.
4. Forsth P, Ólafsson G, Carlsson T, Frost A, Borgström F, Fritzell P, et al. A randomized controlled trial of fusion surgery for lumbar spinal stenosis. *N Engl J Med* 2016;374:1414-23.
5. Kepler CK, Vaccaro AR, Hilibrand AS, Anderson DG, Rihn JA, Albert TJ, et al. National trends in the use of fusion techniques to treat degenerative spondylolisthesis. *Spine* 2014;39:1584-9.
6. Martin CR, Gruszczynski AT, Braunsfurth HA, Fallatah SM, O'Neil J, Wai EK. The surgical management of degenerative lumbar spondylolisthesis: A systematic review. *Spine* 2007;32:1791-8.
7. Vaccaro AR, Garfin SR. Degenerative lumbar spondylolisthesis with spinal stenosis, a prospective study comparing decompression with decompression and intertransverse process arthrodesis: A critical analysis. *Spine* 1997;22:368-9.