

PAIN MEDICINE NEWS

Interventional

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Study Reports: Spinal Fusion After Laminectomy Not Always Needed for Low Back Pain

A much simpler procedure than spinal fusion could successfully treat low back pain in many patients who receive fusion surgery, according to a pair of clinical trials published online simultaneously in *The New England Journal of Medicine*.

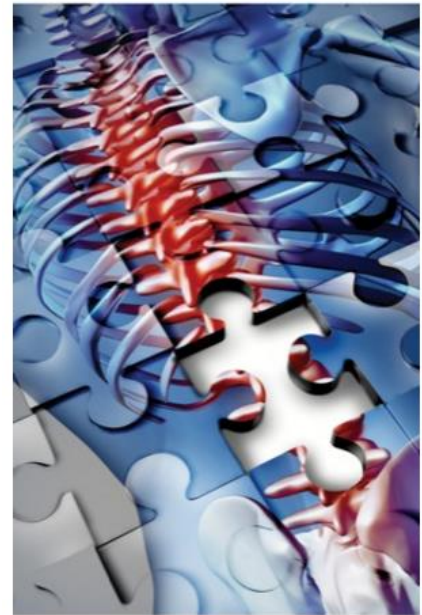
“In comparison to decompression with concomitant fusion, a simple decompression is as effective, cheaper and safer in standard cases of lumbar spinal stenosis,” said Peter Forsth, MD, PhD, an orthopedic spine surgeon in the Department of Surgical Sciences at Uppsala University, Sweden. Dr. Forsth was the principal investigator of his study (*N Engl J Med* 2016;374:1413-1423).

Decompression was enough to relieve spinal stenosis, and with fewer complications, in patients without malalignment of the spine, said Zoher Ghogawala, MD, FACS, chairman of the Department of Neurosurgery, Lahey Hospital and Medical Center, in Burlington, Mass., and lead author of the U.S. study (*N Engl J Med* 2016;374:1424-1434).

In the Swedish study, 247 patients with lumbar spinal stenosis with or without degenerative spondylolisthesis, from seven Swedish hospitals were randomly assigned to either decompression with concomitant fusion or decompression alone. The patients were followed for at least two years, with 66% still being observed at five years.

Instability May Not Be Problem In Decompression Without Fusion

“The results were quite surprising,” said Dr. Forsth. “There has been a strong belief that a decompression [laminectomy] causes instability and hence the need for fusion. We found that



not only the leg pain was improved by decompression alone, but also the back pain. This was true even in those patients with a severe preoperative slip of more than 7 mm.”

He added, “Thus, instability does not seem to be a big problem after decompression without fusion. The most important factor for the improved function and relief of pain after surgery for lumbar spinal stenosis is the decompression of the neural structures.” Too much importance has been placed on the role of preoperative degenerative spondylolisthesis, he noted.

In the American study, 66 patients were randomly assigned to the same two treatment arms in the Swedish study. In the latter study, the primary outcome measure was the Medical Outcomes Study 36-Item Short Form Health Survey two years after surgery. As with the Swedish study, there was little difference in outcomes between the two groups. However, the U.S. trial, unlike the Swedish study, examined health-related quality of life outcomes, and found “a small but clinically meaningful improvement in health-related quality of life for patients treated with fusion,” said Dr. Ghogawala.

“The Forstth paper correctly finds that there is no benefit to adding a fusion when doing a decompression for lumbar stenosis,” said Dr. Ghogawala. “The papers together suggest that not all patients with spinal stenosis with grade I spondylolisthesis require fusion. “The fusion operation provides more durable results with less chance of a second operation.”

However, “about 33% of patients who are treated with simple laminectomy will develop instability and will need a second operation to fuse the spine,” said Dr. Ghogawala. Adding a spinal fusion when performing a lumbar laminectomy increases the recovery time, but provides more durable results. Only 14% of those treated with a spinal fusion would require a second operation.”

Evidence Lacking for ‘Best Practice’

A concurrent editorial on the two studies suggests that the number of second operations that include spinal fusion “reflects decision-making about revision surgery in the United States,” and that this occurs more frequently in the United States than in Sweden (*N Engl J Med* 2016;374:1478-1479).

“Performing fusion in addition to bony decompression surgery is generally accepted as the best practice, even in the case of degenerative stable spondylolisthesis, in which the anteriorly slipped vertebra does not move more than 3 mm forward on the adjacent vertebra below,” Wilco C. Peul, MD, PhD, and Wouter A. Moojen MD, PhD, wrote in their editorial. But they note that there is a dearth of evidence to support this practice.

According to the authors, “Both trials show clearly that for most patients, stenosis surgery should be limited to decompression when no overt instability is present.” Evidence from both trials “suggests that fusion for the treatment of stenosis is no longer the best practice and that its use

should be restricted to patients who have proven spinal instability as confirmed on flexion-extension radiographs; vertebral destruction caused by trauma, tumors, infections or spinal deformities, such as congenital spondylolisthesis or adult scoliosis; or neuroforamen stenosis with compressed exiting nerves caused by postsurgical disk collapse.”

Drs. Peul and Moojen further noted that the more complex fusion surgery can lead to adverse iatrogenic outcomes. An analysis of Medicare data on 32,152 patients showed that “the rate of life-threatening stroke and cardiopulmonary events among patients who underwent complex fusion surgery was reported to be triple the rate among patients who underwent decompression surgery alone.”

Between 2002 and 2007, while use of surgical decompression for spinal stenosis declined slightly in the United States, its use with spinal fusion in combination rose 15-fold, and has been considered a best practice, according to the editorial.

Surgery Unnecessary in Many Cases

Ira Fox, MD, who read the Forsth study, praised the quality of the research. But Dr. Fox, who is president-elect of the World Society of Pain Clinicians, and president and co-founder of Anesthesia Pain Care Consultants, in Tamarac, Fla., said very few of the many patients he treats require surgery. The combination of interventional pain management with physical therapy, including spinal conditioning, “provides excellent pain relief without surgery.” He said “although complications [from surgery] are not rampant, they exist in a significant percentage of patients, including 11% with dural tears,” noting that the latter figure came from the Swedish study. Furthermore, patients with atrial fibrillation who discontinue blood thinners run a 3% risk for stroke if they have surgery, he said.

—*David C. Holzman*