Study investigates the cost effectiveness of spinal surgery

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Back pain affects more than 80 percent of people and costs more than $100 billion annually in the U.S. But is the surgery cost effective? A study by researchers at Rush University Medical Center suggests that for patients with spinal stenosis, a laminectomy, or surgical removal of some soft bone and tissue, is a reasonable value. However, for patients with spinal stenosis with associated slipped vertebrae, the benefits of spinal fusion surgery may not be enough to offset costs.

The study is published in the December 16 issue of the *Annals of Internal Medicine*.

Rush was one of 13 sites throughout the country and the only Chicago site that followed patients in the Spine Patient Outcomes Research Trial (SPORT).

"This study is significant because it is the first to systematically track people's health care expenditures and health outcomes," said Dr. Gunnar Andersson, former chairman of the department of Orthopedics at Rush and study investigator. "More than 650,000 surgical procedures are performed annually for back pain in the United States with costs exceeding $20 billion. Whether this investment provides good value is largely unknown."

The study looked at two conditions, spinal stenosis that is treated most commonly with laminectomy, which is a procedure where orthopedic surgeons remove the portion of the vertebral bone called the lamina and

soft tissue to relieve pressure on the nerves in the spine. The second condition that was analyzed is spinal stenosis with slipped vertebrae also known as spinal stenosis with degenerative spondylolisthesis, which is most commonly treated with spine fusion surgery.

More than 3,900 patients participated in the randomized, controlled trial of surgery versus non-operative treatment. 320 patients underwent laminectomy and 344 patients had spinal fusion.

Researchers used the Quality Adjusted Life Year (QALY) scale to measure benefit to patients in comparison to the direct and indirect costs of the surgical procedures over a two-year period after surgery. The researchers calculate that stenosis surgery using laminectomy cost is $77,000 per QALY gained. In contrast, spinal fusion surgery for stenosis with slipped vertebrae cost about $115,000 per QALY gained. In the U.S., $100,000 is the threshold at which procedures are considered to be cost effective.

The initial two-year analysis indicates that decompressive surgery without fusion for spinal stenosis offers good value and that fusion surgery for spondylolithesis offers less value for its cost than most accepted interventions. A definitive assessment of cost effectiveness awaits longer term outcome data, which will be analyzed further as the trial continues.

"With the number of spine surgery cases in the U.S. increasing and the rising costs of health care expenditures, it is extremely important for us to understand the economic value of common surgical procedures," said Andersson. "Cost effectiveness is a critical component of providing patients with quality care."

"With the SPORT trial we have an innovative and collaborative multicenter study of elective orthopedic interventions," said Andersson.

"As we continue to analyze the outcomes of these procedures over the next decade, we will have more long-term results that will benefit back pain patients."

"For many patients suffering from back pain, getting rid of the pain is worth any cost," said Andersson.

Source: Rush University Medical Center