ORLANDO—Two out of every 5 patients undergoing epidural steroid injections (ESI) for pain from lumbar stenosis or herniation end up getting lumbar surgery within five years, and 1 out of 5 do so within the first six months after injection, according to a “Best Paper” shared at the 32nd Annual Meeting of the North American Spine Society (NASS).

“Some patients and their physicians look to ESIs to avoid or delay invasive spine surgery,” said Jayme Koltsov, PhD, one of the study's authors. “A better understanding of the typical time frame within which patients are likely to have surgery after ESI and who is most likely to have surgery will better inform the shared surgical decision-making process between surgeons and patients.”


Interestingly, the researchers found that patients with the diagnosis of disc herniation went on to surgery at a 2.4 higher rate than those with spinal stenosis. The team identified other factors associated with increased rates of lumbar surgery after ESI, including:

- concomitant spine diagnoses (other than herniation and/or stenosis)
- younger age
- male sex
- ESI without fluoroscopic guidance
- residence in the Northeastern or rural United States
- previous treatment for tobacco use

(more)
Conversely, female gender and certain medical comorbidities—including cardiopulmonary and neurologic comorbidities, obesity, chronic pain, anxiety and previous treatment for drug use—were associated with lower rates of subsequent surgery.

Survival analyses were performed using the Marketscan® databases 2007-2014 (representing 15 million unique patients from over 100 payers). Inclusion criteria were a diagnosis of stenosis or herniation and active enrollment for one year prior to the ESI to screen for exclusions. Patients were followed longitudinally until they either progressed to surgery or had a lapse in health plan enrollment, at which time they were censored. Differences in survival with patient demographics and treatment details were assessed with multivariable Cox proportional hazard models (SAS 9.4, two-sided $\alpha = 0.001$).

A total of 203,001 patients meeting the inclusion and exclusion criteria were identified (age 53±15 years, 48% female). Within six months, 17.6 (99% CI: 17.3, 17.9)% of ESI patients underwent lumbar surgery. By one year, this increased to 23.7 (99% CI: 23.3, 24.0)% and by 5 years, this reached 36.2 (99% CI: 35.7, 36.7)%.

Patients with disc herniation progressed to surgery at 2.38 (99% CI: 2.27, 2.49) times the rate of those with stenosis ($p < 0.001$). A concomitant diagnosis of neuritis, radiculitis, or radiculopathy was associated with an over 5-fold increase in the rate of surgery [hazard ratio: 5.34 [(99% CI: 5.14, 5.53), $p < 0.001$]. The increase in surgery rates with other concomitant spine diagnoses ranged from a 22% increase with spondylosis to an 87% increase with instability ($p < 0.001$ for each). Conversely, female sex was associated with 15% lower rate of surgery [hazard ratio: 0.85 (99% CI: 0.83, 0.88), $p < 0.001$] and fluoroscopic guidance was associated with a 12% lower rate of surgery [Hazard ratio: 0.88 (99% CI: 0.85, 0.92), $p < 0.001$]. A number of medical comorbidities were associated with decreased surgery rates. This was most pronounced for patients with CHF [hazard ratio: 0.84 (99% CI: 0.76, 0.92)], followed by previous treatment for drug use, and then chronic pain, obesity, anxiety, other cardiac complications, hypercholesterolemia, and COPD ($p < 0.001$ for each).

Additional study, including symptom severity and the extent of neural compression, will shed further light on the effectiveness of ESI for delaying or preventing surgery.

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FDA Device/Drug Status: This abstract does not discuss or include any applicable devices or drugs. The NASS 2017 Disclosure Index can be found on pages 168-188 of the NASS 2017 final program.

More than 3,000 spine professionals will meet at the NASS 32nd Annual Meeting in Orlando, October 25-28, 2017 at the Orange County Convention Center to share the latest information, innovative techniques and procedures, best practices and new technologies in the spine field. NASS is a multidisciplinary medical organization dedicated to fostering the highest quality, evidenced-based and ethical spine care by promoting education, research and advocacy. NASS is comprised of more than 8,000 members from several disciplines, including orthopedic surgery, neurosurgery, physiatry, neurology, radiology, anesthesiology, research and physical therapy. For more information, visit www.spine.org, NASS Facebook and NASS Twitter.

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