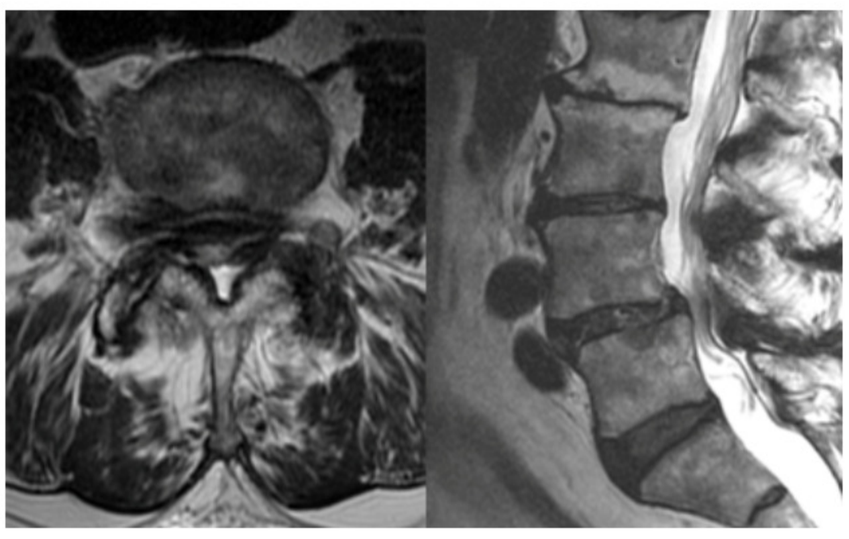
Stanford Health Care Now

UNIQUELY STANFORD

Spinal Decompression under Twilight Sedation Brings Relief at Stanford

11.04.2020



Patients who are older or at high risk for general or spinal anesthesia now have a safe surgical option for spinal decompression surgery. Todd Alamin, MD, spine surgeon with Stanford Medicine Spine Center, performs minimally invasive spinal decompression using conscious sedation coupled with local anesthetic. Dr. Alamin is the only surgeon at Stanford and one of the only surgeons nationally who uses this spinal decompression technique.

Benefits of decompression surgery under conscious sedation

While general anesthesia (GA) and spinal anesthesia (SA) are safe sedation methods for many patients, older adults are often at higher risk for hypotension and postoperative cognitive dysfunction. At the same time, spinal stenosis most often occurs in adults over the age of 60.

Dr. Alamin finds decompression surgery under local anesthesia with IV sedation (LIS) to be an excellent alternative to GA and SA for this subset of patients. Benefits of spine surgery under twilight sedation include:

- **Lower postoperative complications:** A 2019 short-term analysis of outcomes based on a retrospective cohort study[i] showed the overall rate of postoperative complications after lumbar decompression was 30% lower with LIS versus GA patients. Patients under LIS also trended toward lower rates of recurrent stenosis.
- **Reduced risk of postoperative cognitive dysfunction (POCD):** According to clinical observational studies, POCD is more likely to surface after extensive surgery under GA, after secondary surgery, and when there are postoperative complications. This risk is decreased with the removal of GA, minimal postoperative issues, and a lessened chance of recurrent stenosis requiring a second operation.
- **Safer alternative to SA for older patients:** In a study of the hemodynamic effect of SA on patients age 65 and older[ii], SA in elderly patients resulted in a significant decrease in blood pressure and cardio output.
- **Perfect monitoring of nerve root function:** Patients under LIS provide instantaneous feedback about surgically induced nerve root irritation. Decompressing nerve roots more gently may lead to a lower risk of scarring and nerve injury.

Indication for LIS in spinal surgery

Dr. Alamin first turned to conscious sedation in 2003 to treat patients too sick for GA or too hemodynamically unstable for SA. Today, he performs spinal decompressions using LIS once a week on average. His typical patient is age 55 or older and presents with severe lumbar stenosis. He generally does not offer this type of sedation for patients at low risk for general anesthetic.

For higher-risk patients, prominent contraindications for LIS in decompression include:

- **Variants of disk herniation**, which require significant retraction of sensitive roots
- **High level of patient anxiety**, which may restrict patients to relax during the surgery
- **Longer decompression**, as a lengthier surgery can put unnecessary pressure on the chest of a patient spending prolonged time in the prone position
- **An at-risk airway**, as commonly found in patients with sleep apnea and determined by the anesthesiologist

Lumbar decompression is the most standard surgery Dr. Alamin performs using this technique. When indicated, he has used LIS for other spinal surgeries including:

- Cervical decompressions
- Multi-level lumbar decompressions
- Lumbar fusion
- Acute disc herniations

Continued investigation of spinal surgery under LIS

By the end of the year, Dr. Alamin intends to submit plans for a randomized study to better understand the effects of LIS. He plans to look at postoperative outcomes following spinal decompression surgery in patients ages 55 to 80. The study will measure cognitive reactions, physical activity, and use of pain medication.

[i] Ziino C, Montgomery B, Koltsov J, Alamin T. Local anesthetic and sedation works as well as general anesthesia for lumbar spinal decompressions: a short-term analysis of outcomes. *The Spine Journal.* 2019;S221-S222. doi: 10.1016/j.spinee.2019.05.563

[ii] Hofhuizen C, Lemson J, Snoeck M, Scheffer GJ. Spinal anesthesia-induced hypotension is caused by a decrease in stroke volume in elderly patients. *Local Reg Anesth.* 2019;12:19-26. Published 2019 Mar 4. doi:10.2147/LRA.S193925

Referring patients with spinal stenosis to Stanford Health Care

Learn more about referring patients to the Stanford Medicine Spine Center. Find out more about our current clinical trials.

CLINICAL TRIALS

Stanford HEALTH CARE

Learn more about the latest advanced clinical trials in Orthopaedics and Sports Medicine at Stanford Health Care and discover open trials currently accepting patients.

View clinical trials

TODD ALAMIN, MD

View full profile

INTERESTED IN LEARNING MORE?

Read recent articles

