The value of the nerve root sedimentation sign in diagnosing lumbar spinal stenosis

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The US Centers for Medicare & Medicaid Services, in a 2013 review of lumbar spinal stenosis, state there is no consensus and only insufficient evidence for the definition of lumbar spinal stenosis or the accuracy of diagnostic tests, including which clinical signs and symptoms originate from lumbar spinal stenosis. However, there is growing evidence that the “nerve root sedimentation sign” (SedSign) could aid the diagnosis of the condition. Markus Melloh and Thomas Barz, who invented the SedSign, review the evidence base for this prospective diagnostic tool.

Spine needle insertion is not easier when patients are squatting

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S squish Soltani, Mohammad Department of Anesthesiology, Dr. Shariati Hospital, Tehran University of Medical Sciences, Tehran, Iran) and others write that reducing lumbar lordosis during initiation of neuraxial block could help to identify the spinal space and reduce the number of spinal needle bone contacts. They add that lumbar lordosis could be reduced during the administration of spinal anaesthesia if a patient was in squatting position rather than in the traditional position, describing the squatting position as “the patient squats while his or her buttock and plantar surfaces of the feet are supported by the operating table and the patient hugs his or her knees.”

The aim of their study was to compare spinal anaesthesia administered when a patient was in a squatting position with when a patient was in the sitting position, with the goal of minimising needle bone contact and improving ease of insertion/space identification. Soltani et al randomised 236 patients, who were due to undergo elective lower abdominal or lower extremity surgery, to receive spinal anaesthesia in a squatting position (118) or in a sitting position (118). The total number of bone contacts was statistically lower in the squatting position group compared with the sitting position group (222 vs. 230, respectively; p=0.01). However, the authors add: “Insertion of needle was easy in 97 (87%) and 94 (84%) of patients and difficult in 20 (18%) and 17 (15%) of patients in the traditional sitting and squatting positions, respectively (p=0.59 and p=0.12).” They comment the fact that there was no difference in space identification or needle insertion between the groups despite the fact that the squatting position reduced lumbar lordosis may be due to the squatting position inducing tension in the supraspinous ligament.

thermore, use of the SedSign is fast, does not require taking additional measurements, and demonstrates the stenosis in a way that can easily be explained to the patient. It additionally provides supplementary information to other diagnostic tests and could help in identifying patients who may benefit from decompression surgery. However, further research is required—including both testing and treatment—to determine how specifically the SedSign predicts treatment outcomes and identifies which segmental levels to include in decompression surgery1–3.

Looking to the future, patients might benefit from an additional tool recently described by Barz Melloh et al and further developed with co-inventor Raoul Hecker. Epidural pressure measurement at stenosis level might improve the diagnostic accuracy in lumbar spinal stenosis compared with using MRI and clinical examination alone. This technique could be used before or during surgery helping to identify which segments require decompression.

The use of the SedSign in determining the management of patients with lumbar spinal stenosis

Evidence from these eight studies (the seven published studies and the ongoing SPORT study) suggests that the SedSign could be useful as an add-on tool for surgical decision-making in lumbar spinal stenosis. The inventors of the SedSign believe it is a simple, reliable, and cost-effective indicator of lumbar spinal stenosis with significant advantages compared to solely assessing the cross-sectional area of the dural sac11.12. Fur-