

Lumbar spinal stenosis: Can positional therapy alleviate pain?

Our research suggests that it may

Practice recommendation

- Positional therapy with a wheeled walker may help patients with spinal stenosis to walk, as well as ease their pain. This conservative approach has minimum risks—and minimum costs.

Abstract

Methods: We analyzed a retrospective case series of 52 patients with spinal stenosis confirmed by spinal imaging and walking limitations treated with a wheeled walker set to induce lumbosacral flexion.

Results: Of the 52 patients, improvement in ambulation was classified as excellent for 30 (58%), good for 7 (13%), moderate for 8 (16%), and poor for 7 (13%). Among 48 patients with neurogenic pain, pain relief was classified as excellent for 22 (46%), good for 11 (23%), moderate for 7 (14.5%), and poor for 8 (16.5%).

Conclusions: These retrospective data from a case series support the hypothesis that positional therapy with a wheeled walker set to induce lumbosacral flexion relieves lower extremity symptoms of spinal stenosis. However, an adequate test of this hypothesis will require randomized trials of sufficient size and duration that include objective clinical endpoints such as quality-of-life measures, immobility

complications and need for drugs, physical therapy, procedures including epidural injections, and spinal surgery.

In the meantime, this conservative strategy is an option for patients following the recommendations of the North American Spine Society, or for those who have contraindications (or aversions) to surgery or epidural injections, or who have found these options ineffective. Positional therapy with a wheeled walker offers the possibility of short-term benefits for ambulation and pain, with minimal risks and costs.

When shoppers at the grocery store are leaning forward on their carts, many of them could be trying to relieve the pain of lumbar spinal stenosis. This way of finding temporary relief is one we replicated with a wheeled walker for prolonged periods in a retrospective case series to see what further benefits might be gained.

Symptoms are affected by body position and activity level. For patients with lumbar spinal stenosis, lower extremity symptoms can be debilitating and include loss of sensation, paresthesias, burning, pain, weakness, claudication, difficulty standing or walking, or nocturnal neuropathic pain in the feet, legs, or thighs. Axial loading¹ (as occurs during walking)

Stuart M. Goldman, DPM,
 E. Joan Barice, MD, MPH,
 Wendy R. Schneider, RN,
 MSN, CCRC, and Charles
 H. Hennekens, MD, DrPH

From: The Charles E. Schmidt College of Biomedical Science, Department of Clinical Science and Medical Education & Center of Excellence, Florida Atlantic University, Boca Raton, Fla (SMG, EJB, WRS, CHH), the Departments of Psychiatry and Behavioral Science, University of Miami Miller School of Medicine, Miami, Fla (EJB), Departments of Medicine & Epidemiology and Public Health, University of Miami Miller School of Medicine (CHH), and the Department of Clinical Preventive Medicine, Nova Southeastern University, Fort Lauderdale, Fla (EJB, CHH).
 chenenneke@fau.edu

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and spinal extension² (as occurs in an erect position) both decrease the diameter of the central spinal canal and lateral recesses, and may cause nerve compression and lower extremity symptoms. In contrast, lumbosacral flexion—facilitated, for example, by leaning forward on a grocery cart³—opens the spine and may reduce nerve compression and related symptoms.

Exhaust all medical options before turning to surgery. The North American Spine Society (NASS) has issued clinical guidelines for spinal stenosis that make recommendations regarding the value of pharmacologic interventions, manipulative techniques, behavioral therapies, and other conservative measures (www.guideline.gov).⁴ For patients with severe or unremitting symptoms requiring specialized care by spine specialists, NASS further outlines 3 phases of gradually intensifying medical therapy before turning to surgery, which is associated with increased morbidity and costs.⁵

A previously untested medical approach. Most patients may return to productivity within 2 to 4 months after starting conservative treatment, but some will still require treatment recommended for greater levels of severity.⁶ For these latter patients, no randomized trials have evaluated the efficacy of medical management with a wheeled walker. This new intervention, if effective, could avoid or delay the expense and side effects of surgery.⁷ In addition, a wheeled walker may decrease pain from spinal stenosis.⁸

To explore whether positional therapy with a wheeled walker relieves lower extremity symptoms of lumbar spinal stenosis, we conducted a retrospective case series of 52 patients with spinal imaging confirmed lumbar spinal stenosis and walking limitations.⁹

■ Methods

These observations were based on retrospective chart reviews of all patients in a podiatric private practice (SMG)

over 1 year to identify those with lower extremity symptoms of lumbar spinal stenosis who were evaluated with positional testing.

Identifying possible stenosis by positional history

Patients were suspected of having spinal stenosis contributing to, or entirely responsible for, lower extremity neuropathic or claudication symptoms based on a positive positional history, including any of the following patterns:

- walking limitation in which the patient needed to sit or lean forward to get relief
- significant improvement in ambulation when pushing a grocery cart, walker, or baby stroller, or when on a treadmill that induced lumbosacral flexion
- constant, frequent, or occasional lower extremity symptoms of a neuropathic nature with an unclear cause that was exacerbated by walking or standing
- nocturnal exacerbation of neuropathic symptoms affected by sleep position.

Symptoms linked to the cause radiologically. Spinal stenosis was confirmed by spinal imaging (magnetic resonance imaging or computed tomography scan) showing stenosis in areas corresponding to symptoms in the lower extremities. Patients without confirmatory spinal imaging were excluded from our study.

Peripheral neuropathy was diagnosed by changes in nerve conduction studies interpreted as being consistent with axonal or demyelinating peripheral neuropathy. Using these criteria, we assembled a case series of 52 patients with imaging-confirmed lumbar spinal stenosis and walking limitations. Of the 52 patients, 33 had received a previous diagnosis of spinal stenosis confirmed by spinal imaging, but only 10 considered that to be the cause of their lower extremity symptoms, with the remainder presenting with a primary diagnosis of peripheral neuropathy—with or without arterial claudication.

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71% of patients reported excellent or good improvement in walking after 3 to 5 days of using a wheeled walker

Using positional testing to confirm suitability of rollator walker

Patients with lower extremity symptoms of lumbar spinal stenosis underwent a therapeutic trial of “positional testing” involving full-time use of a 3- or 4-wheeled rollator walker (usually provided as a loan) set to induce lumbosacral flexion for 3 days. For patients no taller than 4'9" to 5'2", a reduced-height walker (29" to 32") was usually necessary; patients shorter than 4'9" usually needed a modified pediatric walker.

Patients returned for adjustment of the walker if it was uncomfortable or unhelpful. We recommended they also use a shower stool and kitchen stool to minimize erect posture. If they experienced nocturnal exacerbation of neuropathic symptoms, we encouraged them to try sleeping in a recliner. If patients with neuropathic symptoms wanted to continue sleeping in bed, we encouraged them to try sleeping with a pillow beneath their thighs (if sleeping on their back), or sleeping in a fetal position with a pillow between their thighs (if sleeping on their side).¹⁰

We usually reevaluated patients in 3 to 5 days, comparing current pain severity and walking capability with previous levels. Patients reporting improvement were encouraged to maintain this full-time positional testing for a total of 10 days. During the subsequent “positional therapy” phase, they gradually reduced their use of the walker, if possible, to an amount just needed to maintain improvement. The therapy phase lasted for 3 months, bringing the total time that patients used a walker to nearly 14 weeks.

Criteria for successful treatment

We gauged treatment success according to self-reported walking capabilities and subjective descriptions of uncomfortable symptoms, using criteria previously described.¹⁰

Walking distance. Patients reported uninterrupted walking distance before using the walker and after they had begun

using the walker. We classified improvement in walking distance as excellent (over 400% increase), good (250%–399%), moderate (100%–249%), or poor ($\leq 99\%$). (The distance a patient can walk—before pain sets in—may vary from day to day. We therefore gauged improvement in this distance by contrasting consistent walking distances achieved and maintained with positional management to the shortest usual walking distance before the intervention.)

Pain reduction. To define a decrease in discomfort reported during the positional testing phase and maintained with positional therapy, we used a verbal analog pain scale (1–3 out of 10 = mild pain; 4–7 = moderate pain; 8–10 = severe pain). We classified reduction in discomfort stemming from spinal stenosis as excellent (75%–100%), good (50%–74%), moderate (25%–49%), or poor ($\leq 24\%$).

■ Results

Rapid and dramatic improvement for most patients

The 52 patients in our case series ranged in age from 67 to 90 years; 19 were men. Of the 52, improvement in ambulation was excellent for 30 (58%), good for 7 (13%), moderate for 8 (16%), and poor for 7 (13%) after 3 to 5 days.

Of 48 patients with neurogenic pain, grading with the verbal analog pain scale showed relief was excellent for 22 (46%), good for 11 (23%), moderate for 7 (14.5%), and poor for 8 (16.5%) after 3 to 5 days.

Of the 37 patients with excellent or good improvement in ambulation, 11 needed to keep using the walker extensively, 22 frequently, and 4 occasionally or not at all. Of the 6 patients who had undergone spinal stenosis surgery, improvement was excellent for 3, good for 1, and poor for 2.

A subgroup of 36 patients in our study had diabetes. Of these, 25 had concomitant peripheral neuropathy; 18 re-

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ported good to excellent improvement of ambulation or reduction of pain.

■ Conclusion

Patients deserve a trial of positional therapy with the wheeled walker

These descriptive data support the hypothesis that positional therapy with a wheeled walker set to induce lumbosacral flexion alleviates lower extremity symptoms of spinal stenosis. Limitations of this case series:

- the lack of any comparison group
- improvements in ambulation are based on subjective criteria
- findings can be generalized only to older patients potentially eligible for surgery,¹¹ those who have not benefited from surgery, or those who are undergoing medical therapies recommended by the North American Spine Society⁴

• patients seen in a podiatry office who present for lower extremity symptoms of spinal stenosis may differ from those seen in a family practitioner's office who present with low back pain.

Nonetheless, this conservative strategy may be applicable to the evaluation and management of lower extremity symptoms of spinal stenosis regardless of presenting symptoms or source of medical care.

Walking limitations and lower extremity pain caused by spinal stenosis are physically and psychologically disabling. Relief can dramatically improve a person's quality of life. Improved ambulation may also aid in the management of concurrent medical conditions, such as diabetes and cardiovascular disease.

Our hypothesis requires direct testing in randomized trials of sufficient size and duration. Such trials should include longer term and more objective clinical endpoints, such as quality of life measures, complications due to immobility and need for drugs, physical therapy, procedures such as epidural injections, or spinal surgery. Validation of this hypothesis would substantially reduce morbidity and

costs, as well as increase the quality of life of patients with lower extremity symptoms of lumbar spinal stenosis. Until such studies are conducted, this conservative strategy may increase ambulation and decrease pain over the short term, with minimal risks and costs. It may also be helpful for those with contraindications (or aversions) to surgery or epidural injections or those who have found these approaches ineffective. ■

Correspondence

Charles H. Hennekens, MD, Sir Richard Doll Research Professor, College of Biomedical Science, Department of Clinical Science and Medical Education and Center of Excellence, Florida Atlantic University, Building 10-Administration, Division of Research, Room 244D, 777 Glades Road, Boca Raton, FL 33432; chenke@fau.edu

Disclosure

The authors reported no potential conflict of interest relevant to this article.

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