FPIN's Clinical Inquiries

Treatments for Sciatica

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Clinical Question

How effective are common treatments for sciatica?

Evidence-Based Answer

Surgical diskectomy can be offered to patients with refractory sciatica (Strength of Recommendation [SOR]: B, based on multiple randomized controlled trials [RCTs] of moderate quality), but there is only modest, short-term improvement in leg pain and disability scores. Epidural steroid injections may be offered to patients with sciatica of more than six months' duration. (SOR: A, based on a meta-analysis of RCTs.) However, there is minimal short-term improvement in leg pain and disability scores with this treatment.

Nonsteroidal anti-inflammatory drugs (NSAIDs) and systemic steroids should not be used in patients with sciatica. (SOR: A, based on a meta-analyses of RCTs.) Topiramate (Topamax) and pregabalin (Lyrica) should not be used in patients with sciatica. (SOR: B, based on small RCTs.) All of these medications have adverse effects. Traction and bed rest should not be offered to patients with sciatica because they do not improve pain or disability. (SOR: A, based on a systematic review of RCTs.)

Evidence Summary

Surgical Interventions. A Cochrane review found three moderate-quality RCTs comparing surgery with conservative management for low back pain with sciatica that had not improved after 12 weeks.[1] The outcomes could not be combined in a meta-analysis. One RCT with 501 patients (mean age = 42 years) found that patients who underwent open diskectomy (compared with nonoperative treatment) had minimally improved sciatica pain and disability as measured by the Oswestry Disability Index at three months, but no differences at one and two years. A second RCT with 88 patients found that when compared with physical therapy and education, microdiskectomy in patients with small to moderate disk herniation modestly reduced disability scores at three and 12 months, but not at two years. A third RCT that compared microdiskectomy with epidural steroid injection found that surgery moderately improved leg pain and disability scores, and slightly improved leg strength, but did not improve back pain. None of the improvements persisted beyond six months *(eTable A)*. Another RCT followed patients for five years after surgery and found no differences in disability scores, leg and back pain, or global perceived recovery between surgical and conservative management.[2]

Epidural Steroid Injections. A meta-analysis of 23 placebo-controlled RCTs evaluating epidural steroid injections for sciatica found small improvements in leg pain and disability scores at two to 12 weeks that did not persist.[3] There were no differences at one year. The meta-analysis included patients who had symptoms for six months, and there were no reports of adverse effects.

Nonsteroidal Anti-Inflammatory Drugs. A meta-analysis of four placebo-controlled RCTs with a total of 947 patients 46 to 52 years of age who had acute sciatica of three to 14 days' duration found no improvement in pain scores after treatment with nonsteroidal anti-inflammatory drugs[4] *(eTable B)*. Medications included meloxicam (Mobic), lornoxicam (not available in the United States), piroxicam (Feldene), and diclofenac. Gastrointestinal adverse effects were common (5% to 10%). ▶

Systemic Steroids. A meta-analysis evaluating systemic steroid treatments for acute to subacute sciatica found no significant improvements in pain or overall response rates, but two times the risk of adverse effects and surgery.[5]

Other Medications. An RCT with 29 patients (mean age = 53 years) treated with topiramate found no improvements in pain or disability at four weeks.[4] An RCT with 217 patients (mean age = 53 years) treated with pregabalin found no improvement in pain at four weeks.[4] An RCT with 50 patients (mean age = 40 years) treated with gabapentin (Neurontin, 900 to 3,600 mg per day) found a 27% improvement in pain scores ($P < .001$).[4]

Traction. A systematic review of 32 RCTs found that traction produced no benefit compared with sham traction or other conservative treatments.[6] The authors evaluated subjective pain, disability, global subjective improvement, and return to work. Traction was associated with increased pain in 15% to 30% of patients.

Bed Rest. A systematic review of 10 RCTs found no differences in pain relief and functional status in patients with low back pain and sciatica who were advised to rest in bed vs. stay active.[7]

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REFERENCES

1. Gibson JN, Waddell G. Surgical interventions for lumbar disc prolapse: updated Cochrane Review. *Spine (Phila Pa 1976).* 2007;32(16):1735-1747.
2. Lequin MB, Verbaan D, Jacobs WC, et al. Surgery versus prolonged conservative treatment for sciatica: 5-year results of a randomised controlled trial. *BMJ Open.* 2013;3(5):pii:e002534.
3. Pinto RZ, Maher CG, Ferreira ML, et al. Epidural corticosteroid injections in the management of sciatica: a systematic review and meta-analysis. *Ann Intern Med.* 2012;157(12):865-877.
4. Pinto RZ, Maher CG, Ferreira ML, et al. Drugs for relief of pain in patients with sciatica: systematic review and meta-analysis. *BMJ.* 2012;344:e497.
5. Roncoroni C, Baillet A, Durand M, Gaudin P, Juvin R. Efficacy and tolerance of systemic steroids in sciatica: a systematic review and meta-analysis. *Rheumatology (Oxford).* 2011;50(9):1603-1611.
6. Wegner I, Widyahening IS, van Tulder MW, et al. Traction for low-back pain with or without sciatica. *Cochrane Database Syst Rev.* 2013;(8):CD003010.
7. Dahm KT, Brurberg KG, Jamtvedt G, Hagen KB. Advice to rest in bed versus advice to stay active for acute low-back pain and sciatica. *Cochrane Database Syst Rev.* 2010;(6):CD007612. ■

eTable A. Common Treatments for Sciatica

Intervention	*Study characteristics*	*Patient characteristics*	*Outcomes*
Surgical interventions			
Microdiskectomy vs. epidural steroid injection[A1]	RCT followed for 3 years	n = 100 patients; mean age = 40 years	5% absolute improvement in leg strength at 3 months ($P < .05$) 30% improvement in leg and back pain by visual analog scale at 3 months ($P < .001$) and 6 months ($P = .03$) ODI score was 30% better at 3 months ($P < .001$)
Microdiskectomy vs. physical therapy and education[A1]	RCT	n = 88 patients	ODI score improved 12% and 11% at 3 and 12 months, respectively (95% CI, 4.5% to 20% and 4% to 17%) ODI score was nonsignificant at 2 years
Open diskectomy vs. conservative treatment[A2]	RCT	n = 283 patients; mean age = 41 years	Leg and back pain improved 25% at 8 weeks ($P < .05$) Nonsignificant for any outcome at 1, 2, and 5 years
Open diskectomy vs. nonoperative treatment[A1]	RCT followed for 4 years	n = 501 patients; mean age = 42 years	ODI score improved 5% (95% CI, 0.2% to 9%) 2% reported less bothersome symptoms at 3 months (95% CI, 1% to 3%) No improvement in Short Form-36 scale for body pain and physical function All outcomes nonsignificant at 1 and 2 years
Other treatments			
Continued activity vs. bed rest[A3]	Systematic review of 10 RCTs	N = 1,923 patients	No difference in pain relief scores or functional status
Epidural steroid injection vs. placebo injection[A4]	Meta-analysis of 23 RCTs	N = 2,334 patients; mean age = 40 to 53 years	6.2% reduction in leg pain at 2 to 12 weeks (95% CI, 3.0% to 9.4%) 3.1% reduction in disability at 2 to 12 weeks (95% CI, 1.2% to 5.0%) All outcomes nonsignificant at 12 months
Traction vs. other conservative treatment[A5]	Systematic review of 32 RCTs	N = 2,762 patients	No difference in pain, ODI score, time to return to work, or global subject scale

CI = confidence interval; ODI = Oswestry Disability Index (0- to 100-point scale); RCT = randomized controlled trial.

Information from:

A1. Gibson JN, Waddell G. Surgical interventions for lumbar disc prolapse: updated Cochrane Review. Spine (Phila Pa 1976). *2007;32(16):1735-1747.*

A2. Lequin MB, Verbaan D, Jacobs WC, et al. Surgery versus prolonged conservative treatment for sciatica: 5-year results of a randomised controlled trial. BMJ Open. *2013;3(5):pii:e002534.*

A3. Dahm KT, Brurberg KG, Jamtvedt G, Hagen KB. Advice to rest in bed versus advice to stay active for acute low-back pain and sciatica. Cochrane Database Syst Rev. *2010;(6):CD007612.*

A4. Pinto RZ, Maher CG, Ferreira ML, et al. Epidural corticosteroid injections in the management of sciatica: a systematic review and meta-analysis. Ann Intern Med. *2012;157(12):865-877.*

A5. Wegner I, Widyahening IS, van Tulder MW, et al. Traction for low-back pain with or without sciatica. Cochrane Database Syst Rev. *2013;(8):CD003010.*

eTable B. Common Medications Used to Treat Sciatica

Medication	*Study characteristics*	*Patient characteristics*	*Outcomes*
Gabapentin (Neurontin, 900 to 3,600 mg per day) vs. placebo[B1]	RCT	n = 50 patients; mean age = 40 years	27% improvement in pain ($P < .001$)
Nonsteroidal anti-inflammatory drugs (meloxicam [Mobic] 7.5 to 15 mg, lornoxicam* 8 mg, piroxicam [Feldene] 20 mg, diclofenac 50 to 100 mg)[B1]	Meta-analysis of 4 RCTs	N = 947 patients; mean age = 46 to 52 years	No improvement in overall or leg pain scores Adverse effects (e.g., nausea, abdominal pain, diarrhea) in 5% to 10%
Pregabalin (Lyrica, 150 to 600 mg per day) vs. placebo[B1]	RCT	n = 217 patients; mean age = 53 years	No improvement in mean pain score
Systemic steroids (methylprednisolone 160 to 500 mg, dexamethasone 8 to 64 mg, or prednisone 20 to 60 mg) vs. placebo[B2]	Meta-analysis of 7 RCTs	N = 383 patients; mean age = 37 to 46 years	No improvement in overall response rate Adverse effects: 13% steroids vs. 7% placebo (NNH = 17) Surgery rate: 15% steroids vs. 6% placebo (NNH = 11)
Topiramate (Topamax, 50 to 400 mg per day) vs. placebo[B1]	Crossover trial	n = 29 patients; mean age = 53 years	No improvement in pain or disability score

NNH = number needed to harm; RCT = randomized controlled trial.

**—Lornoxicam not available in the United States.*

Information from:

B1. Pinto RZ, Maher CG, Ferreira ML, et al. Drugs for relief of pain in patients with sciatica: systematic review and meta-analysis. BMJ. *2012;344:e497.*

B2. Roncoroni C, Baillet A, Durand M, Gaudin P, Juvin R. Efficacy and tolerance of systemic steroids in sciatica: a systematic review and meta-analysis. Rheumatology (Oxford). *2011;50(9):1603-1611.*