

## Which treatments are effective for cervical radiculopathy?

### Evidence-based answer

Initial treatment options comprise rest, cervical immobilization, anti-inflammatory drugs (nonsteroidal and steroidal), pain relievers (including muscle relaxants and antiepileptics), and physical therapy (strength of recommendation [SOR]: **B**, cohort studies). As many as 60% of patients who fail initial treatments report long-term pain relief with epidural corticosteroid

injections (SOR: **C**, case series). Surgery to reduce nerve compression can improve pain and function, but has risks (SOR: **B**, 1 randomized, controlled trial [RCT] and cohort studies). The natural course of cervical radiculopathy may be spontaneous resolution of symptoms within 5 years in 75% of cases (SOR: **B**, retrospective cohort studies).

### Clinical commentary

#### Let the patient help choose the therapy

Cervical radiculopathy is often diagnosed in primary care patients with upper extremity pain. Many patients find it reassuring to learn that symptoms can resolve without invasive treatments, such as epidural injections or surgery. Most require some form of symptom management, however.

Recognizing that strong evidence doesn't favor one type of treatment over another, it's best to review options with the patient and allow him or her to share in the final decision. For patients who can tolerate nonsteroidal anti-inflammatory drugs (NSAIDs), scheduled dosing for 10 to 14

days has been effective. Physical therapy can help, especially patients who've had previous success with this treatment.

Soft cervical collars are seldom used in my community. Patients report that wearing the collar draws unwanted attention; the collar is often difficult to properly fit, and all in all, may be more cumbersome than helpful. Referral for epidural corticosteroid injection or possible surgery is usually reserved for patients who don't respond to conservative therapies.

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### Evidence summary

Initial treatments for cervical radiculopathy encompass:

- rest
- cervical immobilization
- NSAIDs
- analgesics (including muscle relaxants and antiepileptics)

- physical therapy.

Because few RCTs of these treatment options have been conducted,<sup>1</sup> recommendations are based primarily on cohort studies and clinical experience.

#### Analgesia: Try anticonvulsants last

No clinical trials have been published

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### FAST TRACK

**As many as 60% of patients who fail initial treatments report long-term pain relief with epidural corticosteroid injections.**

that look specifically at rest, immobilization, or oral analgesics for cervical radiculopathy. A Cochrane review of studies of anticonvulsants for treating acute and chronic pain found none that focused on cervical radiculopathy. The review concluded that “surprisingly few trials show analgesic effectiveness of anticonvulsants,” and “anticonvulsants should be withheld until other interventions have been tried.”<sup>2</sup>

### Physical therapy seems to help

No RCTs of physical therapy for cervical radiculopathy been reported. However, a case series of patients treated specifically for cervical radiculopathy found that 10 of 11 patients who underwent physical therapy (including manual therapy, cervical traction, and strengthening exercises) were improved—defined as a self-report of being “quite a bit better”—at 6-month follow-up.<sup>3</sup>

A 1995 systematic, blinded review of RCTs of cervical traction found 3 studies. However, the inclusion criteria of these studies weren't limited to cervical radiculopathy, limiting the applicability of the results. The 3 RCTs showed no advantages (2 studies) or modest advantages (1 study) for cervical traction over placebo or standard physical therapy without traction. Each study defined improvement differently, but most patients in all groups showed improvement.<sup>4</sup>

### Epidural steroids appear effective

Epidural corticosteroid injections have demonstrated success in both retrospective and prospective studies. One case series of cortisone epidural injections reported 60% of patients (12 of 20) had good or excellent response at long-term follow-up (mean follow-up=21.2 months; range=2–45 months). Six of the 20 patients proceeded to surgery.<sup>5</sup>

Another series of 32 patients who had failed conventional treatment showed a 62% response—defined as “good or excellent” pain relief—to epidural steroid injection at 14 days. At 6 months, 53%

continued to report good or excellent pain relief. No significant side effects occurred. The 44% of patients who didn't report success also didn't report any further deterioration.<sup>6</sup>

### Surgery can relieve pain, but has risks

Laminectomy to reduce nerve compression may alleviate pain and improve function, but it has risks. Surgical procedures for cervical radiculomyelopathy have reported death rates of 0% to 1.8%; nonfatal complications occurred in 1% to 8% of patients.

A Cochrane review found only one RCT (N=81) that compared surgery with conservative treatment (physiotherapy and the cervical collar).<sup>7</sup> Twenty patients crossed over to another treatment, including 3 surgical patients who improved before surgery and 11 who did postop physiotherapy.<sup>8</sup> Patients were still analyzed by intention to treat, however.

The surgery group showed greater pain improvement at 3 months, as assessed by visual analogue scale (0 to 100), than the physiotherapy group (mean difference [MD]=-14; 95% confidence interval [CI], -27.84 to -0.16) and the cervical collar (MD=-21; 95% CI, -33.32 to -8.68). At 1 year, however, no difference was seen between surgery and physiotherapy (MD=-9; 95% CI, -23.39 to 5.39) or between surgery and the cervical collar (MD=-5; 95% CI, -18.84 to 8.84).<sup>7</sup>

### Symptoms often resolve spontaneously

The natural course of cervical radiculopathy is uncertain, but symptoms often resolve with conservative measures or no treatment at all. A 1994 community-based epidemiological survey of 561 patients showed that 75% of patients had a spontaneous symptomatic improvement within 5 years. Earlier studies (6 studies from 1957 to 1972) concluded that untreated patients wouldn't necessarily develop progressive disability and that



A myelography of the cervical spine of a 59-year-old man with cervical radiculopathy shows C6 nerve root impingement.

patients with severe disability sometimes improve without treatment.<sup>7</sup>

**Recommendations**

Brigham and Women’s Hospital’s guideline recommends treating cervical radiculopathy with a soft collar, rest, non-steroidal anti-inflammatory drugs, and physical therapy with cervical traction. If initial management isn’t effective after 6 weeks, the guideline advises referral to a specialist such as an orthopedic surgeon, neurologist, or rheumatologist. Surgical intervention is indicated if the patient shows signs of spinal cord compression or if pain is hindering function.<sup>9</sup>

An evidence-based practice guideline from The American Society of Interventional Pain Physicians states that moderate evidence supports the efficacy of interlaminar and transforaminal steroid injections.<sup>10</sup> ■

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