

**TABLE 111-9** COMMON CERVICAL ROOT SYNDROMES

DISK SPACE	ROOT AFFECTED	MUSCLES AFFECTED	DISTRIBUTION OF PAIN	DISTRIBUTION OF SENSORY SYMPTOMS	REFLEX AFFECTED
C4-5	C5	Deltoid, biceps	Medial scapula; shoulder	Shoulder	Biceps
C5-6	C6	Wrist extensors	Lateral forearm	Thumb; index finger	Triceps
C6-7	C7	Triceps	Medial scapula	Middle finger	Brachioradialis
C7-T1	C8	Hand intrinsic	Medial forearm	Fourth and fifth fingers	Finger flexion

sclerosis, and, less commonly, subacute combined system disease (vitamin B<sub>12</sub> deficiency). Conservative treatment includes the use of anti-inflammatory medication, cervical immobilization, and physical therapy for isometric strengthening of neck muscles once pain has subsided. Surgery should be considered if there is progression of the neurologic deficit, especially the emergence of signs of cervical cord compression. There is some evidence to suggest that cervical spondylosis is an active degenerative disease rather than simply the process. Furthermore, early studies with the glutamate antagonist riluzole suggest a potential role in reducing disease progression.

### ACUTE LOW BACK PAIN

Low back pain without sciatica (radiating radicular pain) is common, with a reported point prevalence of up to 33%. Acute low back pain lasting several weeks is usually self-limiting, with a low risk for serious permanent disability. Risk factors for prolonged disability include psychological distress, compensation conflict over work-related injury, and other coexistent pain syndromes. The evaluation of patients with acute low back pain should focus on distinguishing pain of mechanical origin from neurogenic pain caused by nerve root irritation. The same pathologic changes that affect the cervical spine may also affect the lumbar spine. Because the spinal cord ends at the level of the first lumbar vertebra, lumbar canal stenosis from intervertebral disk disease and degenerative spondylosis will affect the roots of the cauda equina. The most common levels for lumbar degenerative disk disease are at L4 to L5 and L5 to S1, resulting in the common complaint of sciatica caused by irritation of the lower lumbar roots. Pain tends to improve with sitting or lying down, in contrast to the pain from spinal or vertebral tumors, which is aggravated by prolonged recumbency. Examination shows loss of the normal lumbar lordosis, paraspinal muscle spasm, and exacerbation of pain with straight leg rising, owing to stretching of the lower lumbar roots. About 10% of disk herniations occurs lateral to the spinal canal, in which case the more rostral root is compressed. Percussion of the spine may elicit focal tenderness of one of the vertebrae, suggesting bony infiltration by infection or tumor.

Spinal stenosis of the lumbar region may manifest as “neurogenic claudication,” which is usually described as unilateral or bilateral buttock pain that is worse on standing or walking and relieved by rest or flexion at the waist. Patients may have pain that is worse when walking downhill, in contrast to patients with vascular claudication, whose pain is maximal when walking up an incline.

MRI in many patients with isolated low back pain shows non-specific findings; MRI assessment early in the course of an episode of low back pain does not improve clinical outcome. MRI should be limited to patients with back pain who have associated neurologic symptoms or signs, especially new onset disturbances of bladder or bowel continence or perineal sensory symptoms suggestive of a *cauda equina syndrome*. Patients with risk factors for malignancy, infection, or osteoporosis, as well as those with pain maximal at rest (or nocturnal pain) require imaging. Patients with primary and metastatic tumor can present with acute back pain (Chapter 119). Moreover, developmental anomalies are often associated with pain (Chapter 115).

Treatment strategies for lumbar pain are similar to those for cervical pain, with surgery reserved for patients with neurologic signs and clear pathologic processes seen on imaging studies. Most cases of acute low back pain, even with rupture of an intervertebral disk, can be treated conservatively with a short period of rest, muscle relaxants, and analgesics. Prolonged bed rest is recommended only for patients in severe pain. Patient education regarding proper posture and appropriate back exercises is helpful, as is a formal physical therapy program. Chiropractic manipulation should not be performed for patients who have evidence of neurologic injury or spine instability.

 For a deeper discussion on this topic, please see Chapter 398, “Headaches and Other Head Pain,” in Goldman-Cecil Medicine, 25th Edition.

### SUGGESTED READINGS

- Bronfort G, Evans R, Anderson AV, et al: Spinal manipulation, medication, or home exercise with advice for acute and subacute neck pain: a randomized trial, *Ann Intern Med* 156:1–10, 2012.
- Cherkin DC, Sherman KJ, Kahn J, et al: A comparison of the effects of 2 types of massage and usual care on chronic low back pain: a randomized, controlled trial, *Ann Intern Med* 155:1–9, 2011.
- El Barzouhi A, Vleggeert-Lankamp CL, Lycklama à Nijeholt GJ, et al: Magnetic Resonance Imaging in follow up assessment of sciatica, *N Engl J Med* 368:999–1007, 2013.
- Fehlings MG, Tetreault LA, Wilson JR, et al: Cervical Spondylitic Myelopathy. Current State of the art and future directions, *Spine* 38:S1–S8, 2013.
- Gelfand AA, Goadsby PJ: A neurologist’s guide to acute migraine treatment in the emergency room, *Neurohospitalist* 2:51–59, 2012.
- Headache Classification Subcommittee of the International Headache Society: The International Classification of Headache Disorders: 3rd edition, *Cephalalgia* 33:629–808, 2013. Available at: <http://ihs.classification.org/en/>.
- Rana MV: Managing and treating headache of cervicogenic origin, *Med Clin North Am* 97:267–280, 2013.
- Rizzoli PB: Acute and preventive treatment of migraine, *Continuum* 18:764–782, 2012.