

Evaluation and Treatment of Low Back Pain: A Clinically Focused Review for Primary Care Specialists

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CME Activity

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Abstract

Low back pain (LBP) is a leading cause of disability worldwide. In the absence of a classification system for pain syndromes, classification of LBP on the basis of the distribution of pain as axial (pain generally localized to the low back) or radicular neuropathic (pain radiating to the lower extremities) is relevant to clinical practice because the distribution of pain is often a corollary of frequently occurring disease processes involving the lumbar spine. Common sources of axial LBP include the intervertebral disc, facet joint, sacroiliac joint, and paraspinal musculature, whereas common sources of radicular pain include a herniated intervertebral disc and spinal stenosis. The accuracy of historical and physical examination findings has been established for sacroiliac joint pain, radiculopathy, and lumbar spinal stenosis. However, the accuracy of similar data, so-called red flags, for identifying the underlying medical sources of LBP has been overstated. Diagnostic imaging studies can be useful, and adherence to established guidelines can protect against overuse. Multiple pharmacological trials exist for the management of LBP; however, the long-term outcomes of commonly used drugs are mixed. For carefully selected patients with axial LBP, radiofrequency denervation techniques can provide sustained pain relief. In patients with radicular pain, transforaminal epidural steroid injections may provide short-term pain relief, but neurostimulation may confer more enduring benefits of refractory symptoms. Pain-related indications for commonly performed operations include spinal decompression for radicular symptoms as well as spinal fusion or disc prosthesis for discogenic LBP. Physical modalities and psychological treatments can improve pain and functioning, but patient preferences may influence treatment adherence.

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Low back pain (LBP) is a leading cause of disability worldwide with a lifetime incidence of 51% to 84%.^{1,2} The taxonomy of pain syndromes, including LBP, is underdeveloped, and no widely accepted single classification system currently exists.³⁻⁵ However, classification of LBP based on the distribution of pain as predominately axial (pain localized to the low back area) or radicular (pain radiating to the lower extremities in a dermatomal distribution with or without accompanying LBP) is particularly relevant to primary care specialists because the distribution of pain is often a corollary of frequently occurring disease processes involving the lumbar spine.⁶ This simple classification scheme provides a clinically focused framework for organizing key historical and physical examination findings that drive the diagnostic and therapeutic decision-making processes that arise in the routine care of adults with LBP.^{6,7} Therefore, the purpose of this review was to provide a clinically focused approach for the evaluation and treatment of chronic LBP for primary care specialists.

METHODS

Similar to previously published search strategies,⁸ databases of MEDLINE using the PubMed and Ovid platforms as well as the Cochrane Database of Systematic Reviews were searched using the key words *low back pain*, *lumbar spine pain*, and *lumbar radiculopathy* with no date restrictions. Key words pertaining to specific topics (eg, *lumbar spinal stenosis*, *physical examination*, *therapeutic spinal injections*, and *analgesic medication*) were cross-referenced with the initial search terms using the identified databases. Search terms were cross-referenced with review articles, and additional articles were identified by manually searching reference lists.

EPIDEMIOLOGY AND NATURAL COURSE

Epidemiology

The estimated prevalence of LBP varies according to the surveillance period and specific type of pain. For example, in a systematic review,⁹ the point prevalence of LBP was 18.3%, the 1-month rate was 30.8%, and the mean annual prevalence was 38.0%. In a more recent systematic review¹⁰ in which *chronic LBP* was defined as pain lasting longer than 12 weeks, the prevalence ranged from 5.9% to 18.1%. The 1-year incidence of an initial episode of LBP ranges

from 6.3% to 26.2%, and estimates of recurrence at 1 year range from 24% to 80%.^{2,9,11}

Neuropathic pain, defined as pain resulting from a lesion or disease affecting the somatosensory system, can be an important characteristic of LBP especially in individuals with a herniated disc causing nerve root irritation and lumbar spinal stenosis. In individuals with predominately chronic axial LBP, questionnaires designed to detect the distinguishing characteristics of neuropathic pain have found that between 17% and 55% of individuals have pain that is primarily neuropathic in nature, with a median rate of 41%.¹²⁻¹⁷ This distinction is important because neuropathic pain may be associated with greater levels of physical and psychological dysfunction as compared with other types of pain.¹⁸ The incidence of new-onset radicular pain ranges from 1.5% to 18.5%,^{19,20} and the incidence of lumbar spinal stenosis has been estimated to be 5 per 100,000 people.²¹

Natural Course

Axial LBP. Although most episodes of acute LBP will resolve, a substantial proportion of patients will develop chronic or recurrent pain. A large study²² that followed 973 people with acute axial LBP found that 28% had not fully recovered 12 months after their initial consultation. Factors associated with persistence included older age, greater baseline pain and dysfunction, depression, fear of pain persistence, and ongoing compensation claims.²² A systematic review²³ comprising 11 studies that followed individuals with axial LBP less than 3 months in duration who sought evaluation in a primary care setting yielded less favorable findings. Itz et al²³ found that one-third of individuals recovered within 3 months, but 65% continued to experience persistent pain at 1-year follow-up. This suggests that individuals who do not recover within 3 months are at increased risk of developing chronic axial LBP.

Radicular Pain. Several studies have sought to determine the natural course of lumbosacral radiculopathy. In one of the earliest studies examining the clinical course in individuals with sciatica, Hakelius²⁴ found that 58% of 38 patients with clinical symptoms and positive contrast myelography were symptom-free within 30 days and 88% were symptom-free after 6 months. A retrospective study by Saal and Saal²⁵ reported that among 52 patients with signs and

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