

health care will need to work together to ensure cost-effective care for patients with back pain.

Surveys in the United States indicate that patients with back pain have reported progressively worse functional limitations in recent years, despite rapid increases in spine imaging, opioid prescribing, injections, and spine surgery. This suggests that more selective use of diagnostic and treatment modalities may be appropriate.

Spine imaging often reveals abnormalities of dubious clinical relevance that may alarm clinicians and patients and prompt further testing and unnecessary therapy. Both randomized trials and observational studies have suggested a “cascade effect” of imaging, which may create a gateway to other unnecessary care. Based in part on such evidence, the American College of Physicians has made parsimonious spine imaging a high priority in its “Choosing Wisely” campaign, aimed at reducing unnecessary care. Successful efforts to reduce unnecessary imaging have included physician education by clinical leaders, computerized decision support to identify recent imaging tests and eliminate duplication, and requiring an approved indication to order an imaging test. Other strategies have included audit and feedback regarding individual practitioners’ rates of ordering and indications and facilitating rapid access to physical therapy for patients who do not need imaging. When imaging tests are reported, it may also be useful to routinely note that some degenerative findings are common in normal, pain-free individuals. In an observational study, this strategy was associated with lower rates of repeat imaging, opioid therapy, and referral for physical therapy.

Mounting evidence of morbidities from long-term opioid therapy (including overdose, dependency, addiction, falls, fractures, accident risk, and sexual dysfunction) has prompted efforts to reduce use for chronic pain, including back pain (Chap. 18). Safety may be improved with automated reminders for high doses, early refills, or overlapping opioid and benzodiazepine prescriptions. Greater access to alternative treatments for chronic pain, such as tailored exercise programs and cognitive-behavioral therapy, may also reduce opioid prescribing.

The high cost, wide geographic variations, and rapidly increasing rates of spinal fusion surgery have prompted scrutiny over appropriate indications. Some insurance carriers have begun to limit coverage for the most controversial indications, such as low back pain without radiculopathy. Finally, educating patients and the public about the risks of imaging and excessive therapy may be necessary. A successful media campaign in Australia provides a successful model for this approach.

#### ALBP WITHOUT RADICULOPATHY

ALBP is defined as pain of <3 months in duration. Full recovery can be expected in more than 85% of adults with ALBP without leg pain. Most have purely “mechanical” symptoms (i.e., pain that is aggravated by motion and relieved by rest).

The initial assessment excludes serious causes of spine pathology that require urgent intervention including infection, cancer, or trauma. Risk factors for a serious cause of ALBP are shown in Table 22-1. Laboratory and imaging studies are unnecessary if risk factors are absent. CT, MRI, or plain spine films are rarely indicated in the first month of symptoms unless a spine fracture, tumor, or infection is suspected.

The prognosis is generally excellent. Many patients do not seek medical care and improve on their own. Even among those seen in primary care, two-thirds report being substantially improved after 7 weeks. This spontaneous improvement can mislead clinicians and researchers about the efficacy of treatment interventions unless subjected to rigorous prospective trials. Many treatments commonly used in the past but now known to be ineffective, including bed rest, lumbar traction, and coccygectomy, have been largely abandoned.

Clinicians should reassure patients that improvement is very likely and instruct them in self-care. Education is an important part of treatment. Satisfaction and the likelihood of follow-up increase

when patients are educated about prognosis, treatment methods, activity modifications, and strategies to prevent future exacerbations. Patients who report that they did not receive an adequate explanation for their symptoms are likely to request further diagnostic tests. In general, bed rest should be avoided for relief of severe symptoms or kept to a day or two at most. Several randomized trials suggest that bed rest does not hasten the pace of recovery. In general, the best activity recommendation is for early resumption of normal physical activity, avoiding only strenuous manual labor. Possible advantages of early ambulation for ALBP include maintenance of cardiovascular conditioning, improved disk and cartilage nutrition, improved bone and muscle strength, and increased endorphin levels. Specific back exercises or early vigorous exercise have not shown benefits for acute back pain, but may be useful for chronic pain. Use of heating pads or blankets is sometimes helpful.

Evidence-based guidelines recommend over-the-counter medicines such as acetaminophen and NSAIDs as first-line options for treatment of ALBP. In otherwise healthy patients, a trial of acetaminophen can be followed by NSAIDs for time-limited periods. In theory, the anti-inflammatory effects of NSAIDs might provide an advantage over acetaminophen to suppress inflammatory changes that accompany many causes of ALBP, but in practice, there is no clinical evidence to support the superiority of NSAIDs. The risk of renal and gastrointestinal toxicity with NSAIDs is increased in patients with preexisting medical comorbidities (e.g., renal insufficiency, cirrhosis, prior gastrointestinal hemorrhage, use of anticoagulants or steroids, heart failure). Skeletal muscle relaxants, such as cyclobenzaprine or methocarbamol, may be useful, but sedation is a common side effect. Limiting the use of muscle relaxants to nighttime only may be an option for patients with back pain that interferes with sleep.

There is no good evidence to support the use of opioid analgesics or tramadol as first-line therapy for ALBP. Their use is best reserved for patients who cannot tolerate acetaminophen or NSAIDs or for those with severe refractory pain. As with muscle relaxants, these drugs are often sedating, so it may be useful to prescribe them at nighttime only. Side effects of short-term opioid use include nausea, constipation, and pruritus; risks of long-term opioid use include hypersensitivity to pain, hypogonadism, and dependency. Falls, fractures, driving accidents, and fecal impaction are other risks. Clinical efficacy of opioids beyond 16 weeks of use is unproven.

There is no evidence to support use of oral or injected glucocorticoids for ALBP without radiculopathy. Similarly, therapies for neuropathic pain, such as gabapentin or tricyclic antidepressants, are not indicated for ALBP.

Nonpharmacologic treatments for ALBP include spinal manipulation, exercise, physical therapy, massage, acupuncture, transcutaneous electrical nerve stimulation, and ultrasound. Spinal manipulation appears to be roughly equivalent to conventional medical treatments and may be a useful alternative for patients who wish to avoid or who cannot tolerate drug therapy. There is little evidence to support the use of physical therapy, massage, acupuncture, laser therapy, therapeutic ultrasound, corsets, or lumbar traction. Although important for chronic pain, back exercises for ALBP are generally not supported by clinical evidence. There is no convincing evidence regarding the value of ice or heat applications for ALBP; however, many patients report temporary symptomatic relief from ice or frozen gel packs, and heat may produce a short-term reduction in pain after the first week. Patients often report improved satisfaction with the care that they receive when they actively participate in the selection of symptomatic approaches that are tried.

#### CLBP WITHOUT RADICULOPATHY

CLBP is defined as pain lasting >12 weeks; it accounts for 50% of total back pain costs. Risk factors include obesity, female gender, older age, prior history of back pain, restricted spinal mobility, pain radiating into a leg, high levels of psychological distress, poor self-rated health, minimal physical activity, smoking, job dissatisfaction, and widespread pain. In general, the same treatments that are