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## Management of Low Back Pain

### INTRODUCTION

Most patients with back pain will respond to conservative treatment. Guidelines appropriate for the primary care physician as well as the neurologist are outlined in Table 5 of "Neurologic Approach to Diagnosis of Low Back Pain," in this issue.

### RECOMMENDATIONS FOR TREATMENT

#### *Bed Rest*

This is usually the first line of treatment, especially if there is incapacitating back and leg pain. The purpose is to decrease intradiscal pressure and decrease impingement on the affected nerve root. The patient should position himself so as to minimize pain. This is usually lying supine with the upper body slightly elevated and with a pillow under the knees, or in the lateral decubitus position. Moist or dry heat should be applied to the areas of pain. For the first day or two of acute pain, icing may be helpful. Pelvic traction is of doubtful value except to enforce bed rest (Pal et al, 1986). Usually, only a few days of bed rest are required. Longer periods may be required for patients who have neurologic deficits. Patients with milder degrees of pain can continue to be up and around with appropriate restrictions. Patients with lumbar-disc disease should be reassured that the condition is usually self-limited. They should be encouraged to stand and walk by day 3 and avoid sitting, and by day 7 to 10 to try and walk 20 minutes for each 3 hours of bed rest. When able to sit comfortably, the patient should begin such exercise as speed walking, swimming, stationary bicycling, and low-impact aerobics, but no high-impact, twisting, or bending exercises.

Prolonged bed rest (more than a week) is rarely indicated. It may contribute to muscle atrophy, cardiovascular deconditioning, bone mineral loss, and reinforcement of illness behavior. In a randomized, controlled study of patients with acute back pain and no neurologic deficits, the clinical outcome was no different in those treated with 2 days or with 7 days of bed rest, and the 2-day patients missed 45% fewer days of work (Deyo et al, 1986).

#### *Medications*

Analgesics should be used as necessary to control the pain of an acute attack. Aspirin, acetaminophen, ibuprofen, or naproxyn may suffice. For more severe pain, use acetaminophen with codeine. Oxycodone (Percodan) and hydrocodone (Vicodin) may induce dependence and should be avoided. In treating an acute attack, it is usually better to have the analgesic taken according to a schedule (e.g., acetaminophen 1000 mg, acetaminophen 375 mg/codeine 30 mg, or ibuprofen 600 mg every 3 or 4 hours; or, naproxyn 375 mg or ibuprofen 800 mg every 8 hours) rather than on demand. It is uncertain whether the antiinflammatory action of the nonsteroidal antiinflammatory drugs is helpful in

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Address reprint requests and correspondence to Harvard Medical School, Massachusetts General Hospital Neurology Department, Massachusetts General Hospital, 15 Parkman Street, WAU-828, Boston, MA 02114

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mechanical or discogenic low back pain, in addition to their analgesic actions. When there are significant spasms of paraspinal or limb muscles, a muscle relaxant drug (diazepam 5 mg every 6 hours) is useful. Although they are frequently prescribed, cyclobenzaprine (Flexeryl), carisoprodol (Soma), and orphenadrine citrate (Norflex) are of minimal effectiveness. Diazepam is rarely needed for more than a week in these patients, since muscle spasm seldom lasts longer. Subacute or chronic pain, especially neuropathic pain, may respond to tricyclic antidepressants (desipramine or doxepin 25 mg q.h.s., increased by 25 mg weekly as needed and as tolerated, to a maximum of 150 mg q.h.s.), carbamazepine (Tegretol) (100 mg b.i.d., increased every 4 to 7 days in 100 mg increments as needed and as tolerated, up to 200 mg t.i.d.) or phenytoin (Dilantin) (100 mg q.d., increased in 100-mg increments every 4 to 7 days as needed and as tolerated, up to 300 mg q.d.).

### **Preventive Measures**

In the patient who is recovering from an attack of low back pain or who has a history of chronic or recurrent pain, a program of regular exercises, reduction of excess weight, and modification of activities should be initiated.

The purpose of back exercises is to strengthen the trunk muscles, thereby stabilizing the spine. Flexion exercises strengthen the abdominal muscles and also reduce the lumbar lordosis. Extension exercises strengthen the paraspinal muscles. Exercises should not be prescribed during an acute attack, since they are likely to exacerbate the pain and might increase the extent of disc protrusion.

Patients also need to be instructed to take postural precautions in activities like bending and lifting. They should change positions frequently (from sitting to standing) and should use chairs with adequate back support. It is most effective to refer such patients to an experienced physical therapist for back exercises and "back school," although there are instruction sheets available for self-teaching. As noted earlier, high-impact exercises like jogging, tennis, and high-impact aerobics and repetitive motions that bend and twist the lower back should be avoided. Regular walking (at least a mile a day) and swimming are recommended.

### **Corsets and Braces**

A lumbosacral corset may relieve acute or subacute low back pain by increasing intraabdominal pressure. It should not be used on a long-term basis since the patient comes to depend on it and the trunk muscles gradually lose their tone. A molded back brace or body cast may be helpful for instability of the lumbar spine, such as in spondylolisthesis or after back sur-

gery. It should be prescribed by an orthopedic surgeon or physiatrist.

### **Injections**

Epidural injections of the corticosteroid triamcinolone, usually administered by an anesthesiologist on a pain unit, may help some patients with subacute or chronic pain. They are used especially for patients at high risk for surgery or who have pain from postsurgical scarring or inflammation, and sometimes in patients with lumbar spinal stenosis. A series of three injections at intervals of no less than 1 month may be necessary to achieve pain relief. More than three injections at the same site are usually not advisable. Improvement with corticosteroid treatment is usually only temporary, however, and clinical efficacy was not shown in a controlled study (Cuckler et al, 1985). Dural puncture may occur inadvertently, especially in patients who have had prior back surgery, and may result in complications of spinal anesthesia, headache, arachnoiditis, or chemical meningitis. Injection of facet joints with corticosteroids and local anesthetics will sometimes alleviate pain originating from the joint. Myofascial trigger-point injections are of dubious merit.

### **Unproved Treatments**

Unproved treatments for low back pain include acupuncture, chiropractic manipulation, and transcutaneous nerve stimulation (TENS). In a controlled study, TENS was no more effective for pain than placebo, adding nothing to exercise alone (Deyo et al, 1990).

### **Chymopapain**

Injection of the enzyme chymopapain into the nucleus pulposus to denature the disc mucopolysaccharides and shrink the disc has been used infrequently in recent years. It should be considered only in patients who are candidates for surgery. Contraindications include spinal stenosis, complete myelographic block, free disc fragment, and prior surgery of the disc. Complications have included anaphylaxis (1%), subarachnoid hemorrhage, disc-space infection, and spinal-cord injury (Nordby, 1983).

### **Surgery**

Referral to a neurosurgeon or orthopedic surgeon who is experienced in back surgery is indicated in cases of increasing neurologic deficit, cauda-equina compression with severe leg weakness, sensory loss, and bladder and bowel symptoms. Since many patients with a foot drop or other motor deficit caused by root compression will recover spontaneously, it is not an absolute indication for surgery. In patients with severe cauda-equina damage due to a large midline disc herniation, there may be persistent neu-

rologic deficits even after prompt disc removal and root decompression. Patients who have failed to respond to an adequate trial of 4 to 6 weeks of conservative management should also be referred for surgical evaluation, although this is obviously a matter of clinical judgment and depends to a considerable degree on the patient's tolerance for the pain and on the degree and duration of disability. Only a small minority of patients suffering from low back pain ever require surgery. It is almost never indicated if imaging studies do not disclose a lesion that correlates well with the clinical findings, or if there is no clinical evidence of compression of nerve roots, cauda equina, or conus medullaris. The most common cause of an unsatisfactory surgical outcome is poor patient selection (Fager and Friedberg, 1980). The surgical approach and decisions such as whether or not a fusion should be done are best left to the surgeon. Laminectomy and disc excision, the most common procedure, has been reported to have excellent results in 40 to 90% of patients, depending on patient selection and surgical technique. Postoperative hospitalization typically lasts no longer than a few days, and patients can usually resume sedentary work within 3 to 6 weeks. Serious operative complications such as hemorrhage, nerve-root injury, and infections are rare (Pappas et al, 1992). Recurrent disc herniation at the same level occurs in 5 to 7% of surgically treated patients. In a controlled study of 126 patients with uncertain indications for surgical

treatment, those treated by laminectomy showed significantly better results at 1 year and insignificant differences from conservatively treated patients at 4 and 10 years after the operation (Weber, 1983). Percutaneous automated discectomy and endoscopic discectomy are not widely used in the United States.

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**ELECTRONIC MAIL**

chiappa@helix.mgh.harvard.edu

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