An Active and Cost-Conserving Approach to the Management of Low Back Pain

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INSTRUCTIONS

The following article, “An Active and Cost-Conserving Approach to the Management of Low Back Pain,” is a continuing medical education (CME) article. To earn credit, read the article and complete the CME evaluation form on page 48.

OBJECTIVES

After participating in the CME activity, primary care physicians should be able to:

1. Understand the current recommendations for an active approach to low back pain, an approach that minimizes utilization of expensive diagnostic testing and focuses on keeping the patient as active and functional as possible.

2. Be able to describe an appropriate management strategy for dealing with patients with low back pain, including activity modification, medications, exercise, and work recommendations.

3. Appreciate the role of conservative management in low back pain and the limited but important role of surgical management in appropriate patients.

INTRODUCTION

Low back pain is a nearly ubiquitous symptom, with a reported lifetime prevalence of 60% to 90% and an annual incidence of 5% in the United States [1]. Many people with low back pain do not seek medical care, suffer no significant functional impairment, and recover rapidly. However, low back pain does account for 14.3% of new patient visits to physicians each year. Back pain is the leading cause of lost work productivity and is second only to upper respiratory complaints as a cause of lost work time [2]. Nearly 2.5 million Americans are disabled by low back pain, 1.2 million chronically [3]. Estimates of the total cost of low back pain to society range from $25 billion to $85 billion [4].

Based on these estimates, it is essential that back disorders be treated efficiently and effectively in order to limit disability as well as to manage costs. However, medical management of low back pain continues to be fraught with overutilization of diagnostic testing, medications, immobilization and bed rest, and surgical procedures [5]. This article presents a practical and cost-efficient approach to the management of low back pain for primary care practitioners, emphasizing an active approach to rehabilitation [6]. An active approach that focuses on restoring activity tolerance through exercise and minimal bed rest not only conserves resources but can prevent progression to chronic low back pain [7].

CASE STUDY

Initial Presentation

A 42-year-old woman presents to her primary care physician (PCP) with a chief complaint of low back and right hip pain.

History

The patient reports that during the past few years, she has experienced intermittent bouts of low back pain that she attributed to household chores and lifting her children. Usually, the pain would subside in a few days. Six months ago, however, she had an unusually severe bout of low back pain for no apparent reason. The pain resolved after 2 weeks except for occasional right hip pain. Two days ago, she had the onset of severe low back pain with constant right hip pain after a busy weekend. The pain reduced minimally with ice to the low back. She has not used any medications.

The patient describes the pain in her back as a central constant low-grade ache, worse in the morning and with driving. Her hip pain is worse after driving and in the evening while watching television. She does not report any paresthesias or numbness, nor does she have pain on coughing or sneezing. She denies any bladder or bowel problems or gait disturbances. She denies a history of fever, unexplained weight loss, neoplasm, or trauma. Her past medical history is unremarkable, including a normal menstrual history.
The patient is a full-time homemaker and mother of 2 young children. She gave up working as a nurse 6 years ago after the birth of her first child. Her second child was born 3 years ago. She is not currently involved in regular strengthening or aerobic activity; however, she does report that as a teenager she was involved in contact sports. Since the birth of her children, she has found it difficult to find time to exercise.

**Physical Examination**

On examination the patient is 5’6” tall and weighs 135 lb. She exhibits normal gait and full range of motion in a squat. In standing, she does not have a lumbar shift and is nontender to palpation at the sacroiliac joints, greater trochanters and bursae, and pubic symphysis. She is found to have pain mid-to end-range of lumbar spine flexion and end-range extension. She is considerably limited in lumbar spine left side flexion. Reflexes, strength, and sensation of the lower extremities are all within normal limits on neurologic examination. Straight leg raise and slump sit testing are within normal limits. Right hip range of motion is within normal limits. Patrick’s test is negative. Her feet are pronated, her right foot greater than the left. On palpation, there is significant restriction to anterior/posterior movement of the right lumbar zygapophyseal joints, L1 to L4. Costovertebral angle percussion is nontender.

Muscle length assessment reveals considerable tightness of the quadriceps muscle bilaterally. The iliopsoas is extremely shortened on the right with passive hip extension limited to 5°. The right piriformis limits external rotation of the right hip to 30° compared with 45° on the left. There is significant muscle weakness of the gluteals and abdominals with obvious abnormal movement patterning of pelvic and lower limb movements. Muscular palpation reveals spasm of the erector spinae, right greater than left. There are very active trigger points in the right quadratus lumborum and right gluteal musculature. The absence of a lower abdominal pulsatile mass is noted and lower limb pulses are 2+ and symmetrical.

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**Table. Disorders Associated with Low Back Pain**

<table>
<thead>
<tr>
<th>Mechanical</th>
<th>Rheumatologic</th>
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<tbody>
<tr>
<td>Muscle strain</td>
<td>Ankylosing spondylitis</td>
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<tr>
<td>Herniated intervertebral disc</td>
<td>Reiter’s syndrome</td>
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<tr>
<td>Osteoarthritis</td>
<td>Psoriatic arthritis</td>
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<td>Spinal stenosis</td>
<td>Enteropathic arthritis</td>
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<tr>
<td>Spondylolisthesis</td>
<td>Diffuse idiopathic skeletal hyperostosis</td>
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<td>Adult spondylolisthesis</td>
<td>Fibromyalgia</td>
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<tr>
<td>Infectious</td>
<td>Polymyalgia rheumatica</td>
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<td>Osteomyelitis</td>
<td>Endocrinologic</td>
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<tr>
<td>Discitis</td>
<td>Osteomalacia</td>
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<tr>
<td>Pyogenic sacroiliitis</td>
<td>Osteoporosis</td>
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<tr>
<td>Herpes zoster</td>
<td>Parathyroid disease</td>
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<tr>
<td>Neoplastic/infiltrative</td>
<td>Microcrystalline disease</td>
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<tr>
<td>Osteoid osteoma</td>
<td>Referred pain</td>
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<tr>
<td>Osteoblastoma</td>
<td>Abdominal aorta</td>
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<td>Osteochondroma</td>
<td>Pancreatitis</td>
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<tr>
<td>Giant cell tumor</td>
<td>Gall bladder disease</td>
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<td>Gaucher’s disease</td>
<td>Kidney</td>
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<tr>
<td>Skeletal metastases</td>
<td>Bladder</td>
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<td>Multiple myeloma</td>
<td>Uterus</td>
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<td>Chordoma</td>
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<tr>
<td>Ovary</td>
<td>Miscellaneous</td>
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<tr>
<td>Neuromuscular</td>
<td>Paget’s disease</td>
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<tr>
<td>Neuropathic arthropathy</td>
<td>Vertebral sarcoidosis</td>
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<td>Neuropathies</td>
<td>Retroperitoneal fibrosis</td>
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<tr>
<td>Psychogenic rheumatism</td>
<td>Subacute bacterial endocarditis</td>
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• What are possible causes of low back pain?
• What is the goal of the initial visit of a patient with low back pain?

Low back pain is associated with a wide range of disorders (Table). Mechanical causes of low back pain include musculoligamentous injuries; disc and facet joint degeneration; herniation of nucleus pulposus, with nerve root irritation; spinal stenosis; and anatomic anomalies, such as scoliosis and spondylolisthesis. The majority of patients present with mechanical axial low back pain with no referral pain patterns [8]. In patients with mechanical low back pain, the neurologic examination is normal and neural tension tests are negative, although the neurologic examination can be abnormal due to comorbid conditions (eg, diabetic neuropathy). Underlying systemic diseases, such as primary or metastatic cancer, spinal infection, or ankylosing spondylitis, account for about 10% of cases. In up to 85% of patients presenting with low back pain, a definitive diagnosis cannot be given [9].

Since a specific cause frequently cannot be identified, and because the majority of individuals presenting with low back pain will recover from the acute episode, the goal of the initial visit is to rule out any serious medical or neurologic illness and to identify the social or psychological issues that may lead to a prolonged course [9]. Cancer, infection, and cauda equina syndrome are rare, but clues to these presentations should be sought in the history and physical examination [10].

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“red flags” associated with cancer include weight loss and pain unrelieved by bed rest.

- What diagnostic possibilities in this patient were ruled out by the physical examination?

Right Hip Osteoarthritis

The pain of hip arthritis can present with more diffuse pain, but usually includes the anterior aspect of the leg and groin. There may be stiffness in the morning with provocation of pain with weight-bearing activities. The physical examination reveals loss of hip range of motion, with a capsular pattern of restriction. The neurologic examination is normal. Associated low back pain caused by gait disturbance is not unusual and is mechanical in nature.

Right Sacroiliac Joint Pain with Referral

The sacroiliac as a pain generator is the subject of controversy in the musculoskeletal literature [11]. It may be associated with pain in the buttck and posterior lower extremity. Pubic area pain may occur when alignment is altered. Neurologic examination is usually normal. Pelvic provocative maneuvers such as Patrick’s test are positive.

Referred Pain from Visceral Structure

Visceral structures in the pelvic region can refer pain to the low back and right hip, for example, a cyst of the right ovary. The quality of the pain is more vague and difficult to localize. The pain may be related to the menstrual cycle. The pain is not provoked with manipulation of the musculoskeletal system. The neurologic examination is normal.

Diagnosis

Based on the history and physical, the patient is presenting with an acute exacerbation of intermittent chronic low back pain with referral to the proximal lower extremity. The patient’s initial reports of various acute low back strains that resolved spontaneously, progression to a more severe episode of back pain 6 months prior to her current episode, and residual hip pain implies a progressing pathology. The hip pain is presumably due to symptoms arising from the deep structures of the spine, given the normal examination of her hip and sacroiliac joint. Her history and physical examination are not consistent with any emergency presentation. Her symptoms do not imply nerve root irritation or injury.

Need for Further Evaluation

Radiologic testing is generally not required in patients presenting with mechanical low back pain. Abnormalities are common even in asymptomatic subjects; in fact, magnetic resonance imaging (MRI) findings of disc degeneration, end plate changes, and osteophytes are almost ubiquitous in persons over 60 years of age [12]. The Quebec Task Force recommends radiographic testing in the case of neurologic deficits, age greater than 50 or less than 20 years, fever, trauma, or history of neoplasm [13]. The Agency for Health Care Policy and Research (AHCPR) guideline on acute low back problems recommends the use of lumbar radiographs in the presence of certain red flags [6]; of note, a retrospective chart review of Canadian family physicians [14] suggested that strict adherence to the guideline would increase utilization of plain x-rays in patients with low back pain.

In the setting of an objective evaluation demonstrating neurologic compromise or disc disruption, MRI of the spine may be useful in detecting anatomic lesions. However, as Boden et al noted, “a diagnosis based on magnetic resonance imaging in the absence of objective clinical findings may not be the cause of the patient’s pain, and an attempt at operative correction could be the first step toward disaster” [12]. One should be judicious in interpreting the findings of the examination, as studies have shown that nearly one third of asymptomatic individuals will have abnormalities on lumbar MRIs [15]. An MRI should be obtained only if it will impact the plan of treatment.

Computed tomography is valuable for defining the bony architecture, such as with bony tumors or infection, and can be utilized if MRI is contraindicated. Bone scan also delineates bone inflammation in the spine. Electromyography (EMG) can be utilized to evaluate local neurologic function in ambiguous presentations. The AHCPR guideline states that needle EMG and H-reflex testing, a special study that provides information about the nerves including the root level, may be useful if the history and physical examination is not obvious and specific for radiculopathy [6].

Laboratory testing is typically unnecessary in the presentation of low back pain. In the event that the pain lasts longer than 1 month or is associated with systemic signs like fever, the PCP may be prompted to test for evidence of a systemic cause of the pain, such as infection, ankylosing spondylitis, or a viscus [6]. For example, an erythrocyte sedimentation rate or C-reactive protein level may be useful in the setting of an infection. These recommendations are not uniformly followed in clinical practice. In a survey by Cherkin et al [16] in which physicians were asked questions about hypothetical patients, the use of imaging, electrodiagnostic, and laboratory testing was dependent on the individual physician’s training and was generally ordered earlier than recommended by the Quebec Task Force.
Initial Management

The physician tells the patient that her acute back pain is most likely due to muscle strain and that her symptoms will likely go away in about a month. She is encouraged to continue with her activities of daily living but to avoid heavy lifting or prolonged activity. The patient is started on ibuprofen. She is also treated with cyclobenzaprine for use at bedtime. Due to the chronicity, irritability, and progressing pathology, a referral to rehabilitation is made. Interventional procedures, such as injections or referral for surgery, are not indicated given her presentation.

What is the approach to medical management of low back pain?

The algorithm in the Figure presents 3 clinical pathways for patients with low back pain, depending on their presentation. The first pathway is for patients whose clinical presentation is consistent with acute mechanical low back pain; the second pathway is for patients with subacute/chronic low back pain or low back pain with somatic or neurogenic referral to the lower limb; the third pathway is for patients with low back pain with evidence of nerve root irritation or frank radiculopathy. Compared to patients with acute mechanical low back pain, patients with subacute or chronic low back pain or with referred pain may have a more advanced process along the degenerative cascade or a more complex biopsychosocial context for the pain and, as reflected in the algorithm, may require greater utilization of services to accomplish symptom control or resolution. Patients with evidence of nerve root irritation or frank radiculopathy are considered separately due to the potential for neurologic compromise.

For the case patient, management would follow the pathway for chronic low back pain with somatic referral.

What education should patients receive about their back pain?

Patients should be encouraged to continue with activities of daily living as tolerated. Instructions should be given to avoid any heavy lifting or prolonged activity and to frequently change positions to avoid increasing intradiscal pressures [18]. Bed rest is not indicated in the setting of mechanical low back pain. In their 1986 study comparing 2 days to 7 days of bed rest, Deyo et al concluded that 2 days of bed rest is more appropriate than a prolonged period that may lead to more deconditioning in patients with low back pain [19]. Of note, there was poor compliance with the bed rest in both groups. The International Paris Task Force supports maintaining or returning to recreational activities rather than any bed rest [8]. Malmivaara et al randomized individuals with mechanical low back pain presenting to an occupational health clinic to bed rest for 2 days, back exercises, or continued activity within the limits of their pain [20]. Outcomes and costs were evaluated after 3 weeks and after 12 weeks. While there was no difference in cost, the group participating in normal activity had the best recovery.

Had the case patient been working outside the home, the physician would encourage her to continue her occupational activity. The cost-effectiveness of ergonomic standards in the work place is an area for future analysis. Valat et al noted that prolonged cessation of work is associated with low back pain chronicity [21]. There are obvious financial and psychosocial repercussions if an individual is unable to tolerate work duties. Nadler et al recommend the assistance of a case manager when dealing with prolonged workman’s compensation cases [22].

What medications are used for low back pain?

In the case patient, the initial choice of medications was to limit inflammation, control pain, and limit muscle spasm. A review of randomized controlled trials (RCTs) of common interventions concluded that analgesics, nonsteroidal anti-inflammatory drugs (NSAIDs), and muscle relaxants are effective in controlling acute and chronic low back pain [23]. Medication costs vary based on the specific medication prescribed and duration of use. Studies of efficacy demonstrate no significant differences comparing different types of NSAIDs or muscle relaxants. Reasonably well-designed studies show the efficacy of diflunisal, naproxen sodium, and piroxicam over placebo in patients with mechanical low back pain [24]. Newer NSAIDs, selective for the COX-2 receptor, have a limited side effect profile but are much costlier. They are appropriate for use in individual patients with specific comorbid conditions, such as ulcer disease or bleeding disorders. In patients in whom NSAID use is contraindicated, such as those with drug allergy or significant renal insufficiency, acetaminophen can be substituted and is economical.
Muscle relaxants may be helpful in patients with back pain. In one study, patients with low back pain receiving both muscle relaxants and NSAIDs had the best outcomes [25]. Oral steroids, while theoretically useful in acute inflammatory conditions, have not been proven effective in acute low back pain. Due to their significant side effect profile, further studies must be done to justify their use in low back pain patients [26].

In some patients with low back pain with radiculopathy, further analgesic control may be required. Pure analgesic...
agents are used to decrease pain. Centrally acting agents in the opioid group are used for a short course in severe pain [27]. Their use in chronic pain has not been studied sufficiently. Combination products with both acetaminophen and a narcotic are available. These products are more expensive. There are new sustained-release opioids with variable prices.

Anticonvulsant medications have been used in the setting of chronic pain of neuropathic origin with success. Gabapentin, a newer anticonvulsant with a higher cost, is also being used for control of neuropathic pain [28]. While not FDA-approved, there is a growing clinical interest in use of gabapentin for the treatment of chronic musculoskeletal pain. Tricyclic antidepressant drugs were not effective in RCTs of patients with chronic low back pain [23]. However, in the setting of neuropathic pain, tricyclic antidepressant medications have been shown to be clinically effective [29]. Newer antidepressants, such as serotonin-reuptake inhibitors, have less analgesic effects and are more costly than tricyclics.

Injectable medications are also available for local control of pain and inflammation. The medications most commonly used in interventional spine procedures are the local anesthetics, corticosteroids, and contrast agents. Their use is relatively costly. A recent review by Cannon and Aprill noted that consensus favors the use of epidural steroid injections in patients with radicular pain rather than in those with low back or somatic referred pain [30].

- What supports the decision to refer this patient for rehabilitation? What should it include?

Referring the patient to a rehabilitation program that combines manual medicine skills with an active exercise program is recommended in this patient because of the chronic and progressive nature of the low back pain. In the setting of acute back pain without referral, one could forego a referral to therapy if the pain resolved within 1 to 2 weeks.

Physical therapy must be individualized and should aim to promote patient independence through the emphasis of exercise and functional training. Manual medicine practitioners such as chiropractors can be utilized if they provide manipulation (defined as forceful passive movement of a vertebral motion segment beyond the current physiologic range but within the anatomic range) and exercise training. The therapist or practitioner should dynamically manage their patients based on the results of individual assessments, treatment response, and expected outcome. Van Tulder and colleagues found manipulation to be effective in patients with chronic low back pain [23]. However, there is no research support for ongoing “maintenance” manipulation treatment once pain is resolved and function is restored. Timm conducted an RCT of physical therapy interventions comparing physical agents, joint mobilization, and high-tech and low-tech exercises in patients with chronic low back pain. He found that low-tech approaches are the most cost-effective and provide the longest period of pain.
relief [31]. The use of physical medicine modalities (eg, ultrasound and electrical stimulation) was not shown to be clinically efficacious in a retrospective review by Jette and Jette [32]. Torstensen et al in a RCT demonstrated a considerable cost savings when patients treated with a physical therapy–based exercise program were compared with a self-exercise group; the savings reflected fewer days lost from work [33]. Carpenter and Nelson showed the usefulness of spine strengthening with progressive resistance exercise training for prevention and treatment of chronic low back pain [34].

Had the case patient presented with acute mechanical low back pain only, utilization of manipulation and exercise would be controversial. The literature on the treatment of acute low back pain with manipulation is limited by poor measurement and study design. Van Tulder et al reviewed RCTs of manipulation in acute low back pain and found it no more effective than physical therapy or drug therapy [23]. They also concluded, based on a review of RCTs, that exercise therapy in acute low back pain is no more effective than other interventions, including no intervention. This conclusion was questioned by the International Paris Task Force, which recommends active exercise for all categories of low back pain [8]. Because manual medicine techniques have been shown to decrease pain in the first 4 weeks, they are considered appropriate treatment for acute low back pain in the AHCPR guideline [6]. An RCT that compared various rehabilitation methods for low back pain patients without radicular symptoms concluded that chiropractic care and the McKenzie method of physical therapy had similar effectiveness and costs and resulted in only marginal improvements in outcome compared to provision of an educational booklet only [35].

- **Is there a role for complementary medicine in the treatment of low back pain?**

Complementary medicine approaches such as acupuncture may be appropriate, but this has not been proven in the literature; studies are ongoing. Van Tulder et al found the trials of acupuncture treatment for chronic low back pain to be of low quality in their 1997 review [23]. The range of expense for complementary approaches is broad and should be closely monitored.

**Follow-up Visit with PCP**

Four weeks later, the patient returns for follow-up. She has been using an NSAID with decreased pain and without significant side effects. She discontinued the NSAID in preparation for her appointment today and is experiencing a minimal pain flare. She has discontinued icing her back after exercise. She has attended 6 sessions of physical therapy and is tolerating a home exercise program of spine stabilization; the physical therapist recommends 2 additional visits to progress the exercise program to incorporate weight lifting and cardiovascular exercises at the community gym and to complete education regarding ergonomics. The physician recommends that the patient continue on the NSAID until she is on a stable exercise program at the gym; she can then use the NSAID on an as-needed basis.

- **What is the approach to the follow-up evaluation of the patient with back pain?**

Patients typically return for a follow-up visit after 4 weeks; if the patient is responding to the treatment program, telephone follow-up may suffice. In a patient reporting decreased pain and tolerating normal occupational and recreational activities (like the case patient), it would be appropriate to discontinue or taper medications. Continued physical therapy interventions should be aimed at educating the patient in a prophylactic strengthening and conditioning program for life, including the use of icing and oral medications with resumption of activity as early as possible. Self-management techniques for future exacerbations should also be reviewed with the patient. Physical therapy is discontinued once goals are met. A specific plan for an ongoing community- or home-based exercise program is mandatory; this is done at an intensity and complexity commensurate with performance in the rehabilitation setting.

Should a patient vary from the expected progression of increasing exercise and functional training, the physician should be notified after the initial course of treatment (< 8 visits). The patient should schedule a follow-up visit for further medical management. Therapy can resume once the medical treatment has been modified, if necessary.

If the case patient had not appropriately progressed with her exercise program, her history justifies further investigation for the presence of signs of disruptions of structural integrity (ie, annular tears or vertebral end plate fractures). If present, these findings would alter expected rate of progression and perhaps, ultimately, level of long-term function. An MRI could delineate the pathology and may assist in planning for interventional procedures (eg, if it demonstrated nerve root involvement). If a patient would not consider surgery or interventional procedures, an MRI is not necessary. In a patient not progressing in rehabilitation, modifying the medication regimen based on ongoing symptoms may be appropriate. Medications to address any affective or central component of pain could be utilized.
Patients with lumbosacral radiculopathy present with a particular pattern of reflex, sensory, and/or strength changes consistent with a specific root level, most commonly L5 or S1. In the setting of clear radicular signs and symptoms, conservative management without MRI corroboration is cost-effective and clinically acceptable. Saal and Saal demonstrated that even in the setting of disc protrusion and documented neurologic impairment, most individuals are successfully managed nonsurgically [36]. An MRI would be more useful when one suspects nerve root irritation but does not have clear evidence of radicular changes on physical examination. Having 2 to 6 weeks

In the setting of nerve root compromise, interventional procedures such as epidural steroid injections are frequently attempted prior to surgical consideration. The use of fluoroscopy-guided injections adds to the overall cost but improves localization [30]; it can also provide useful diagnostic information. Epidural steroid injections in 1 RCT of patients with radicular symptoms provided short-term leg pain relief and sensory deficit improvement but offered no functional improvement or reduction in the need for surgery [37]. Theoretically, epidural steroid injections are optimally performed in conjunction with a spine-specific physical therapy program to take advantage of the pain reduction. According to 1 review, epidural steroid injections are beneficial in the treatment of lumbar radicular pain [38]. The authors of this review as well as others who have reviewed the efficacy of epidural steroid injections focused on the few well-controlled studies that are available.

Radiofrequency neurotomy is also utilized as a means of extinguishing the pain signal if not the pain generator itself; clinical research on its efficacy is ongoing. In carefully selected patients, lumbar medial branch neurotomy has been shown to provide significant pain relief at 1-year follow-up [39]. The cost-effectiveness of these interventional procedures has not been studied.

In an attempt to more specifically localize pain generation to the disc and to improve surgical outcomes after discectomy, discography is utilized. Although its use remains somewhat controversial, a 1995 North American Spine Society position statement found that the majority of recent reports have been “supportive of discography for proper indications” [40]. Discography is considered only after conservative treatments and other noninvasive diagnostic testing have proven inadequate. The preoperative workup cost increases when discography is utilized.

Patients who have failed both conservative and surgical treatment methods may be candidates for a spinal cord stimulator trial. This area of chronic pain management has undergone significant changes over the last decade and promises to continue to progress rapidly. Interested readers are referred to other sources for greater detail [41,42].
formal or informal psychological evaluation of patients suffering from chronic low back pain prior to consideration for surgery, which can add to the expense. A complete review of surgical procedures is not within the scope of this article.

Clinical Course

Since the last visit with the physician, the patient has been discharged from physical therapy and is performing an exercise program at the gym 4 times per week that includes 30 minutes on the treadmill, focusing on walking while maintaining appropriate posture. She performs a lumbar spine, pelvic, and lower extremity stretching program for 10 minutes and performs an alternating strengthening program with resistance equipment for the upper extremity, lower extremity, and spine. She is utilizing correct lifting techniques for child care and housework. She has modified her sitting position in the car and is tolerating driving without pain. She has not required any regular use of medications or modalities, such as ice or heat, for pain control.

CONCLUSION

Overutilization of services to diagnose and intervene with patients with back pain consumes resources unnecessarily and can create greater disability. It is imperative that the physicians on the front-line have access to the most current evidence-based guidelines for managing low back pain. The literature demonstrates that many treatment approaches currently utilized have not been rigorously studied. The lack of information on cost-effectiveness reflects the literature and points the way for further research. Greater familiarity with cost-effectiveness data among clinicians will allow greater input in decisions related to the utilization of health care resources [43].

Research continues to focus on identifying individual risk factors as well as rehabilitation management strategies to avoid progression to chronic and debilitating low back pain. A growing body of research in the past decade highlights the importance of normalization of the neuromuscular system following low back injury; this approach to rehabilitation may prove to be an exciting alternative to our current tendency toward costly diagnostic testing and interventions [8,44–55]. Primary prevention is likely a cost-effective approach and continues to be a focus of low back pain research.

References


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EVALUATION FORM: An Active and Cost-Conserving Approach to the Management of Low Back Pain

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I was provided with new information pertinent to my practice
I reaffirmed a specific skill or knowledge.
This article will help with clinical decision making.
Relevant clinical outcomes are addressed.
The case is communicated in a manner that kept my interest.
The case presentation is realistic and effective.
I could easily interpret the tables and figures.
My attitude about this topic changed in some way.
Additional comments: ______________________________________________________________________________________
__________________________________________________________________________________________________________

Part 2. Please complete the following sentence.
As a result of reading this case study, I . . .
☑ see no need to change my practice.
☑ will seek more information before modifying my practice.
☑ intend to change the following aspect(s) of my practice: (Briefly describe)
__________________________________________________________________________________________________________
__________________________________________________________________________________________________________

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