

PERSISTENT **SPINE-CENTERED** CHRONIC PAIN SCENARIOS AND TREATMENT OPTIONS

Clinical scenarios involving the complex issues surrounding adequate pain relief for spine-related chronic pain patients.

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Treating chronic pain is a clinical challenge for most physicians, primarily because it is often perceived as “subjective” experience. Patients often fail to report pain to physicians and, when they do, factors such as sex, age, socioeconomic factors, and fear of addiction often influence what they tell their doctors. Physician-related barriers to pain relief include lack of knowledge about treatment options, negative attitudes toward prescribing certain analgesics — especially opioids — and inadequate pain-assessment skills. Dr. Russell Portenoy, Chairman of Department of Pain Medicine and Palliative Care at Beth Israel Medical Center in New York City states, “Most physicians do not realize how often their patients fail to report pain to them and how often their patients fail to comply with prescription orders.”¹ To adequately treat their patients, especially those with chronic pain problems such as cancer, it is critical that primary care physicians become knowledgeable about pain management options available to them.^{1-5,51}

It is clear that physicians must address the needs of patients in pain — especially those who have chronic pain conditions — because lack of adequate treatment op-

tions exacerbate medical complications. Unremitting pain is not only associated with a wide variety of systemic complications, but also promotes anxiety, depression, loss of independence, and interference with work and relationships. Chronic pain dramatically affects the quality of life, including the physical, psychological, spiritual, and social components of a normal existence. Any patient who has chronic pain must receive a comprehensive initial assessment, which includes a detailed history, pertinent physical examination, appropriate diagnostic evaluations, and an appropriate neuropsychological assessment. Patients need to be supported and encouraged to maintain and improve their mobility and daily functioning. They need to be fully engaged in an active, productive life with normal interpersonal and social interactions. But the responsibility of physicians to support their patients is made more difficult because many patients do not want to talk about pain. Patients may associate chronic pain with worsening disease, and often express the belief that pain is inevitable and they do not expect medication to relieve it. Studies show that reluctance also stems from the desire to be a non-complaining pa-

tient, fear of distracting the physician, and fatalism regarding pain, especially in the context of an illness such as cancer or chronic pain. In contrast, acute nociceptive pain typically has an identifiable cause and may often be relieved by removing the inciting cause. Examples include post-surgical pain, sports-related injuries, or soft tissue trauma. Physicians often manage such acute/subacute pain with analgesic prescription & non-prescription medications, rehabilitation techniques, and other pain-relieving adjunctive modalities.^{1-5,51}

Chronic Pain Challenges

Treating chronic pain — specifically non-malignant pain — is a much more complex endeavor than that for acute pain. Chronic pain has fewer identifiable causes and the focus of treatment is often to preserve functionality and well-being. Examples of these conditions include malignant pain, myofascial/musculoskeletal pain, chronic infections, osteoarthritis/ rheumatoid arthritis, cervical/lower back pain, chronic headaches or migraines. Chronic pain affects millions of people. In a survey in 1999 by the American Pain Society (APS), researchers stated that 9% of the U.S. adult popula-



tion suffers from moderate to severe non-cancer-related chronic pain, with 56% having suffered for more than 5 years.¹ The annual cost of chronic pain (including medical expenses, lost income, and lost productivity) is estimated to be \$100 billion (APS data).¹ This problem is endemic among elderly and chronically ill patients. The Federal Agency for Healthcare Quality and Research in Rockville, Md., estimates that 45-80% of nursing home residents suffer from chronic pain. The American Cancer Society states that as many as 75% of patients with advanced cancer suffer chronic pain.¹ Many patients report inadequate treatment for their pain complaints. In the 1999 APS study of 805 chronic pain patients, researchers found that more than 50% of respondents changed physicians since some doctors were unwilling to treat pain aggressively, failed to take the issue seriously, or had a lack of knowledge about pain management.^{1-5,51}

A number of factors are involved in preventing adequate pain relief. Fear of regulatory scrutiny for prescribing controlled substances discourages physicians from prescribing opioids of sufficient strength for a patient's pain, especially for chronic nonmalignant pain. Such fears can result in the selection of less effective analgesics and ultimately under-treatment of the patient's pain. Health plans also present barriers to effective pain relief. Reimbursement policies are a significant factor, especially for older patients whose insurance benefits (i.e., Medicare/Medicaid) do not cover the costs of outpatient prescription drugs. Such patients are required to contribute more for copayments and also have limits on the number of prescriptions they are reimbursed for each month.

Some physicians are aware that they are under-treating chronic pain in their patient population. In a 1998 survey by the Eastern Cooperative Oncology Group (clinical researchers in Philadelphia), approximately 76% of 897 physicians surveyed admitted to a lower competence in patient assessment as a major barrier to effective pain management, with 61% stating their reluctance to prescribe opioids.¹ More recently, researchers at Albert Einstein Medical Center found that more than 1/3 (38%) of physician residents-in-training discussed pain management when discharging their patients who had pain and 42% overestimated the threat of opioid addiction.¹ The study concluded that educa-

tional and behavioral modification interventions are necessary to improve documentation of pain status on hospital admission, increase use of standardized pain scales, and address pain management issues upon hospital discharge.

Chronic Pain Protocols

Communication and documentation are crucial variables for both patient and physician alike. Outcomes should be documented at each clinic session, including pain relief, adverse medication or procedure events, functional status, and drug related behaviors. Patients with chronic pain conditions who have analgesics prescribed should be monitored frequently after initiating treatment. Analgesic efficacy of opioid therapy and the effects of side effects and patient functioning should be assessed periodically to monitor the patient's activities of daily living. Often, monthly check-ups are necessary for a patient on a newer medication regimen. Then, when a treatment regimen has been established, these follow-up visits may be extended to 2-6 month intervals. At all times, the patient should be encouraged to report progress and any adverse side effects on the medication and treatment regimen.

The benefits of correctly prescribed long-acting opioids for chronic pain include continuous pain relief, reduced peak/trough effect when compared with short-acting opioids, less sleep disturbances, few medication compliance issues, and few medication side effects. Opioid analgesics should be administered at regular, scheduled intervals, instead of as needed intervals. By avoiding sharp trough/peak levels, one can reduce overall drug consumption needs. When working with chronic pain patients, vigilance is an important factor to consider. The prevalence and impact of chronic pain warrants serious attention. Physicians are in the correct position to improve the plight of the patient in chronic pain states. With the pain treatment options available, and with recognition of the high costs of undertreated or mistreated pain, physicians can — and should — intervene to improve the quality of life for these unfortunate patients.^{1-5,51}

Case Study #1

Mrs. L, a 54-year-old WF, presented with a four year history of progressive lower back pain (LBP). The problem initiated

when she lifted a 40-lb box of magazines from the floor. She noted immediate axial LBP but no referred leg pain. She visited her primary care physician who prescribed a trial of NSAIDs, muscle relaxants, and mild narcotics. She noted some improvements in her symptoms, but without complete abatement. She localized her LBP as midline in the L5/S1 region with referral in the right gluteal/posterior or thigh region. No notable leg weakness or paresthesias was noted. Pain increased with prolonged sitting greater than 30 minutes, leaning forward positioning, and occasionally when lying prone. Pain seemed to be improved by standing or walking. She continued to volunteer in a hospital chaplain's office.

On clinical examination, tenderness was noted over the spinous process of L5. Flexion in standing was reduced by greater than 50%, with slight reduction in extension noted. Motor, sensory, and deep tendon reflexes were normal. Straight leg raising was limited only by hamstring tightness bilaterally. Radiographs (plain) were obtained and revealed normal alignment, without abnormal motion in flexion or extension views. MRI imaging revealed a desiccated, degenerative disc with about 50% disc height loss, with mild lateral recess narrowing bilaterally, and less significant disc degeneration noted at the L4/5 level. Otherwise, remaining levels were essentially normal.

Subsequently, the patient was treated with chiropractic manipulation without improvements after at least 12 months. She also underwent some lumbar traction techniques with the chiropractic clinic without any sustained relief. She was not given any formal exercise or body mechanics instructions, although she did walk around the block for exercise. The patient expressed no desire for any minimally-invasive spinal techniques or surgical options.

The patient was subsequently referred to a physical medicine and rehabilitation specialist having a subspecialty in minimally-invasive spinal management. As a result of persistent pain, she was desperate to try any treatments to help reduce her chronic symptoms. The specialist discussed with her the etiology of her axial degenerative, discogenic pain and how to best treat it. She agreed to undergo a trial of McKenzie extension biased-therapy three times per week for a 3-4 week trial

(the McKenzie Method is an overall program of assessment, treatment and prevention strategies for back/neck pain and has, as a central tenet, self-healing and self-treatment by the patient). The protocol involved a thorough evaluation by a certified McKenzie-trained physical therapist who noted some deficiencies in flexibility and cardiovascular endurance. The patient was assessed for an aggressive stabilization and rehabilitation program. She was instructed on proper postural and body mechanics and how to set a baseline of daily functional performance. She underwent some manipulation sessions and subsequently was instructed on core strengthening exercises. Some of these exercises in her home program included: partial sit-ups, bridging, dying bug, prone swim and superman poses, quadruped with crossed upper and lower extremity extension, push-ups, wall-slide and sumo stances. She was instructed on performing these exercises long-term as it was expected that she would have periodic flare-ups in the future and this would be the best way to treat these episodes. The specialist also discussed next stage options of spinal injection treatments if her pain intensified in the future and were not relieved by the home exercises. Such minimally-invasive techniques would involve lumbar epidural, diagnostic/therapeutic facet joint/medial nerve branch, sacroiliac joint, local trigger point, or intradiscal diagnostic/therapeutic injections, depending on symptomatology. She gradually improved and was instructed to return in the event of significant flare-ups and/or newer symptoms.^{2,5,7-12,16-51}

Case Study #2

Mr. S is a 46-year-old BM with a history of chronic headaches and neck pain for over 3 years. He related the onset of occipital/cervicogenic headaches and posterior neck pain to have begun shortly after a high-impact, rear-end automobile collision in which he collided with an automobile in front of him as well. The cervicogenic headaches were not associated with aura, visual changes, motor/sensory changes, or other migraine-type characteristics, but did involve cervico-occipital and neck/periscapular referred pain, especially with certain neck extension and lateral rotatory movements. He was seen and evaluated by his primary care physician and evaluated with a series of plain radiographs which, other than mildly de-

generative disc and facetogenic changes, were essentially normal. He was treated with NSAIDs and muscle relaxants, without persistent improvements. He was sent for a brief trial of physical therapy without significant improvements noted, other than some mild, transient improvements with a home transcutaneous electrical nerve stimulation unit (TENS). He subsequently was sent for a neurology consultation and underwent a cervical MRI and brain MRI. Both were essentially normal except for mild facetogenic and discogenic/spondylitic changes in multi-

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ple levels (appropriate for his age), noted in the cervical MRI. Several migraine abortive and prophylactic medications were tried but failed to offer relief. Several trigger point injections were tried in the cervical/periscapular region but only lasted for several hours/days but no prolonged relief was noted.

Physical examination revealed no systemic illness or noticeable masses. There was tenderness over the upper cervical region on the right, primarily over the C2/3, C3/4, C4/5 facet joints, just off the cervical midline with deep palpation. Cervicogenic occipital headaches were slightly reproduced with deep palpation in this cervical region and suboccipital region. Cervical range of motion was limited by muscle guarding with extension and lateral rotatory movements on the right compared to the left. The examination

was negative for neural compression provocative maneuvers. Mild reversal in cervical lordosis was noted, otherwise the neuromuscular examination was unremarkable.

The patient was referred to a spine-oriented, musculoskeletal-based orthopedic clinic, with a physical medicine specialist organizing his treatment regimen. Treatment was initiated with spinal manipulation therapy, including manual, mechanically-assisted maneuvers, with posture and body mechanics re-education. This was in fact different than the initial modality-based therapy tried by the primary care specialist. The patient did note initial improvements with range of motion and decreased pain complaints with provocative maneuvers, such as cervical hyperextension and lateral rotation maneuvers, which he graded to be 50% improved. Subsequently, the patient followed up with the specialist and stated that he wasn't completely satisfied with his cervicogenic pain relief and inquired as to other options. They discussed a trial of diagnostic, medial branch nerve injections of the dorsal rami of the spinal nerves of the appropriate cervical facet joints, including a long-acting anesthetic solution and using a pain diary to be reviewed later in the clinic with the physician. Later, after the procedure results were reviewed in the clinic, the patient noted at least >75% improvement with the diagnostic injections which lasted during the anesthetic medication's duration of action. The specialist and patient discussed the treatment options at this point would involve proceeding with the radiofrequency neurotomy or neuroablation of the appropriate medial branch nerves blocked during the diagnostic procedure (i.e., right C2,3,4,5,6). The patient underwent these procedures and noted significant improvements with the cervicogenic pain and headaches after a period of 4-6 weeks. The patient noted persistent improvements of this cervicogenic pain and headaches which lasted approximately 10-12 months in duration. Given the improvements noted, the patients weaned himself off many of his medications except for some occasional medications for infrequent reexacerbation bouts. On the basis of the overall initial positive results, the radiofrequency procedure was repeated 12 months after the initial treatment.^{2,6,13,14,51}

Case Study #3

Mr. P is a 63-year-old WM with an over 14-year history of chronic lumbar pain and significant lower extremity referred pain. His history includes three previous lumbar surgeries with resultant improvements in his lower back pain symptoms, but no resolution in the sharp, radiating pain in the left leg, which spread to the right leg after the 3rd surgery. The pain ranged between 3/10 with extension-biased rest and up to 8/10 with flexion-biased activity on a visual analog scale (VAS). The patient had been through multiple trials of physical therapy, various pain medications, alternative treatments (e.g., acupuncture), and currently was involved in an independent aquatic fitness program at his health club. The patient underwent an MRI-lumbar with gadolinium-enhancement and was noted to have post-surgical laminectomy changes at L4/5, L5/S1 levels with no significant recurrent herniation or foraminal/central stenosis, but a large amount of epidural/perineural fibrotic scar formation especially around the left L5 > right S1 distribution. The patient was referred to an outpatient, chronic pain clinic which tried a number of different spinal injections, including transforaminal lumbar epidural steroid injections, diagnostic lumbar nerve root blocks, facet joint injections, diagnostic discography.

Physical examination revealed that the patient ambulated with a single-point cane with some antalgic gait due to notable stiffness in the gait. Lumbar incisional scar was well-healed with obvious multiple incisions over the midline. Patient had a notable straight-leg test with positive Lasegue maneuvers, most notable on the left than the right. Sensory exam revealed a decreased left L5 and right S1 dermatomal distribution. DTRs were essentially reduced bilaterally at the achilles but with normal patellar reflexes. Motor strength was otherwise normal and no notable Waddell-type, non-organic pain behaviors were exhibited by the patient.

After some discussions with a friend that was being seen at a local orthopedic spine clinic by an interventional-trained physical medicine specialist; the patient decided to look for a second opinion on his condition and other treatment options. He was evaluated in detail by the physician and after reviewing his records and noting no prolonged benefit from the conservative management approach,

including spinal injections, he was offered the option of dorsal column spinal cord stimulator (SCS) trial. This involved a diagnostic trial of the SCS which would primarily treat the lower extremity symptoms, but would also cover some of the lumbar, axial-associated pain. After a successful one-week SCS trial which involved anchoring the SCS leads onto the skin, while lying in the epidural space, the patient returned to the spine clinic and noted that his pain relief, especially with his leg pain, was at least 75-85% improved according to his pain diary.

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Based upon this successful result, the patient was sent to a spine-trained orthopedic surgeon in the practice and the option of a permanently-implanted SCS lead devices and radio frequency receiver implant was then reviewed in detail. The patient underwent the procedure, and after an appropriate period of post-surgical healing, the patient was sent for a brief trial of aquatic/land-based physical therapy to improve his overall function and mobility. After a 3 month follow-up visit, the patient was followed by the physical medicine specialist and noted continual improvements, especially with the leg symptoms and less so with the axial lumbar pain. In effect, he was able to reduce his dependence on chronic narcotics and instead used the SCS transmitter to control his pain relief satisfactorily.^{2-5,8-12,15, 48-51}

Conclusions

Spinal-related pain is one of the most complex problems modern medicine faces today, and is considered one of the “last frontiers” in clinical medical practice. It is the primary complaint prompting medical consultation. Compartmentalization of pain problems into physiological, physical, and psychosocial categories may be useful diagnostically, but must be synergistically joined to achieve therapeutic success. The interventional pain specialist (often the PM&R musculoskeletal/spine specialist, anesthesiologist, orthopedist, or neurosurgeon) is a valuable and often most crucial member of the pain management team. Injury and tissue-specific therapeutic exercise programs must form the basis of physical rehabilitation and functional restoration protocols. The program can combine a core of sedentary exercises coupled with the injury-specific exercises. Importantly, the protocol must expand to encompass psychotherapeutic intervention in chronic pain conditions. Neuromuscular reconditioning must be included to ensure a function-specific, task-oriented program. Essentially and most importantly, the program must be geared to enhance and foster functional recovery of the affected patient.^{37,38}

It has been noted that exercise can effectively augment treatments for the lumbar spine, especially when the physician and therapist work together as a concerted team with the same goals. Further information from the physician about specific goals for the patient, as well as the correct diagnosis for the cause of the problem and potential solutions for that agreed-upon problem(s), helps the therapist and patient conceive of a course of exercise to improve the patient's condition. Specificity of exercise selection and a structured program with progression is critical in providing a successful outcome for each patient treated.

Although spinal interventional options, both minimally-invasive and surgical, should be offered when more conservative treatment options have been expended; they should only be used as a last resort. Training for strength and flexibility of the trunk and extremities is necessary for developing adequate postural control and stabilization skills. A key element of exercise training is gaining adequate control of dynamic lumbar spine forces. By learning these spinal stabiliza-

tion skills, repetitive injury to the intervertebral discs, facet joints, and supporting musculature may be reduced. Training for flexibility is an essential component of spinal stabilization. With flexibility exercises divided into those designed to increase elasticity of musculotendinous units, it is critical that stretching be performed in a spine-safe manner. Ultimately, most patients can successfully treat themselves when provided with the necessary tools and education. An individualized, self-treatment program tailored to the lifestyle of the patient puts the patient in control. The patient's self-management of these skills and behaviors will minimize the risk of recurrence and allow each patient to individually and promptly manage themselves when symptoms recur. The ultimate goal of a spine-related practice is the achievement of patient self-reliance and independence in managing musculoskeletal pain.^{1-5,51} ■

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- Further Websites offering Chronic Pain Information:
 - American Pain Society (www.ampainsoc.org)
 - The Pain & Policy Studies Group at the University of Wisconsin (www.medsch.wisc.edu/painpolicy)
 - The American Academy of Pain Medicine (www.painmed.org)
 - The Schaffer Library of Drug Policy (www.druglibrary.org/schaffer)
 - The Department of Pain Medicine and Palliative Care at Beth Israel Medical Center (www.stoppain.org)