Chronic Pain for the Non–pain Practitioner

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Pain is a prevalent symptom of many diseases and conditions and the complaint that brings more patients to medical attention than anything else (1). It typically presents as acute (inflammatory) or chronic (neuropathic) pain. Cancer-related pain is often a blend of these two major types of pain, and so its effective management will require knowledge about the nuances of both acute and chronic pain. The newer term for acute pain is inflammatory pain, given the fundamental presence of inflammatory mediators in the activation of *and* the body's response to acute injury. Neuropathic pain defines what had been called chronic pain and has proven to be a most useful term. When patients understand that the term means "something (remains) wrong with their nervous system even after their original injury is healed," they gain new insight into why they continue to have pain. For some, this is a decisive moment as they stop looking for a total cure and begin to accept that they will have some pain for the foreseeable future.

The *enduring nature* of neuropathic pain leads to drastic consequences in the patient's life: personal anguish, dissatisfaction with their diminished quality of life, high medical costs at the very time they have decreased vocational capabilities, markedly strained interpersonal relationships (spouse, family members, work colleagues), and altered attitudes, behaviors and lifestyle (1). It must also be acknowledged that plasticity within the nervous system response, fueled by the continuous inflow of noxious input, leads to a disordered CNS response to "pain," just at the time a patient needs a most organized and coordinated response. Examples of the neuroplastic changes include neural sprouting in the dorsal horn, expression of novel sodium and calcium channels, and altered gene expression due to changes in mRNA. Thus, neuropathic pain is characterized by allodynia (pain from a non-noxious stimulus) and hyperpathia/hyperesthesia (an exaggerated response to a usually painful stimulus). Basbaum has said that "persistent pain should be considered a disease of the nervous system, not merely a symptom of some other disease condition (2)."

EVALUATION OF THE PATIENT WITH NEUROPATHIC PAIN

Given only the time duration of neuropathic pain (weeks to months to years), it is clearly different from inflammatory pain (days to weeks). The sustained presence of neuropathic pain disrupts the patient's life in more than just the physiologic realm, and more so than inflammatory pain. Patients with neuropathic pain have changed attitudes about ever "recovering," behaviors that manifest the "sick role," and major changes in their lifestyle when the work and home routines are exemplified by disability and activity restriction. Certainly, the coping skills of the patient, the family, and the medical system are severely challenged as well.

The evaluation starts with a focused statement that specifically states the intended purpose of the referral—1) to obtain a second opinion as to diagnosis and/or management, 2) to provide a specific procedure, or 3) a request for assumption of patient care. Record review is crucial. Not only does one gain a timeline of symptoms, treatments, and responses, but this outline will allow the pain physician to present himself/herself as being interested in this patient and already knowledgeable about their course of pain. The work-up must be systematic and thorough and responsive to the request of the referral source, but also time efficient. The primary goal is to establish what is wrong *and* what is not wrong with the patient. Too many patients with neuropathic pain are receiving treatments for problems they do not have. A differential diagnosis and a working diagnosis will result, for which a specific treatment plan will be generated.

The tools for patient evaluation include 1) history-taking, which can be greatly facilitated by a questionnaire that helps collect the multitude of data the clinician needs to know about the pain (site, character, radiation, onset, and features such as the time course, what makes it better and worse); 2) physical examination, which may be complicated by severe pain, behavioral issues, and the patient's personal agenda; and 3) laboratory studies, which do not usually document the presence, severity, or alleged disability from the pain (1,2). It is essential, as a part of history-taking, to establish the agenda of the patient in seeing the pain specialist, as this may *significantly* impact the recommended course of management. It is important to not hurt the patient early in the examination, as this will result in less cooperation and reflex muscle spasm. A neurological examination is essential prior to one providing any procedures, all of which must be carefully and completely documented. Laboratory study should establish the absence of contraindications to

interventional procedures (major coagulopathy, infection along the path of needle passage, metabolic disarray, and patient/surrogate refusal).

The contemporary evaluation of the patient with neuropathic pain will also include a psychosocial assessment. It has been well stated that a patient's unique psychosocial circumstances influence the transition from inflammatory to neuropathic pain (4,5). In the past, the psychologists screened for 1) nonproductive emotions such as anxiety, depression, frustration, anger, and grieving; 2) the degree of family disruption; and 3) coping skills, and provided self-regulation therapy. In today's practice, the psychologist is also prevailed upon to assess the appropriateness and readiness of *selected* patients for major nerve block therapy, chronic opioids, and major interventional modalities as well as provide coping and pacing skills and foster behavior modification and treatment compliance. A number of standardized evaluation instruments are used such as the McGill Pain Questionnaire, the SF-36 Health Survey, the Profile of Mood States, and the Brief Pain Inventory.

AN APPLICATION OF THE ESSENTIALS FOR PATIENT EVALUATION—LOW BACK PAIN

Low back pain is a most common problem and is often cited as the second leading cause of individuals to miss going to work (1,6). Although low back pain accounts for only 2% of disability claims on an annual basis, it is the leading cause of expenditures by Workers' Compensation, given the costs for the complaining patient's work-up and treatment, replacement workers, and disability income. As a bona fide example of neuropathic pain, the history presented by the patient can be complex, the physical examination findings widely variable, and the laboratory support far from perfect in detecting the exact source of the continuous pain. Challenging the authenticity of the pain is rarely productive, and so a conscientious work-up protocol must be followed to establish "the" diagnosis for the ongoing pain complaints that are so severe that the patient's ability to work is impaired. The role of the pain psychologist is paramount in helping to select the most appropriate management strategy.

The working diagnosis could include the following:

Myofascial pain is a common pain problem characterized by painful trigger points in muscles and the surrounding musculoskeletal tissues.

This is very different from *fibromyalgia*, which is a syndrome of musculoskeletal pain characterized by fatigue, muscle and joint tenderness and stiffness, widespread body pain, sleep disturbance, and anxiety/depression (7).

Facet syndrome is defined by back pain that is increased by extension and rotation of the lumbar spine, associated with reflex muscle spasm and referred pain, and the absence of neurological abnormalities in the relevant extremities.

Radicular pain results from an outpouring of inflammatory mediators from a herniated nucleus pulposus and is associated with sensory, motor, and reflex changes upon neurological examination in the clinically relevant extremity.

MANAGEMENT OF NEUROPATHIC PAIN

It is prudent to endorse that neuropathic pain is more commonly managed than cured, as is true of asthma and diabetes (1,8). The clinician will do best when treatment is targeted at the cause of the pain and not just the symptoms. An active patient is needed in the evaluation, management planning, and treatment phases. The goals of neuropathic pain management are 1) to decrease the frequency and/or the intensity of the pain as much as possible, 2) to improve the patient's ability to function in life, 3) to increase the coping skills in the face of lingering adversity, and 4) to foster cooperation with physical, psychological, social, and vocational rehabilitation (1). Gatchel and Okifuji have recently documented that comprehensive pain programs are the most efficacious and cost-effective approach to managing patients with neuropathic pain (9).

When considering management of any patient, it is worthy to acknowledge that he/she is free to pick and choose from among a variety of treatment modalities. However, they cannot subsequently make their choice(s) the problem of the physician! A patient who chooses not to continuously cooperate with all the elements of a comprehensive management program is less likely to achieve maximal success. Repeated calls back to the pain medicine physician for lack of improvement under these circumstances will test the resiliency of the doctor–patient relationship, as there are likely to be demands from the patient for only certain elements of the treatment program, i.e., opioids; yet the physician must stand firm because there will be no credible evidence that the entire program has truly failed.

It is important to conduct follow-up visits of the patient in a focused manner. When the patient returns, the first information to obtain is, what has happened to the original "pain" complaint(s), and thereby the symptoms and cause of the pain, with the therapy provided and has the patient's ability to function improved? Other questions for investigation include 1) has the patient been compliant? 2) is a proposed interventional procedure still "indicated" (after assessing the patient physically and psychosocially)? 3) how has the current status of the patient helped him/her achieve all of the goals of management? It is important to maintain in the management program only those modalities that are having a positive effect as to pain and function, but also realizing that the options are not infinite.

TREATMENT OPTIONS FOR NEUROPATHIC PAIN

Medications are the most common form of treatment of pain complaints. However, even their use must be guided by the results of the comprehensive assessment of the patient, as all medications have side effects and the potential for drug–drug interactions. Medications should be given for specific reasons.

Nonsteroidal antiinflammatory drugs are indicated in the management of mild to moderate musculoskeletal pain (1). They have the well-known side effects of gastric irritation, renal blood flow compromise, and a decrease in platelet adhesion, not all of which are necessarily minimized by COX-2 selective inhibitors. Patients for NSAID prescription must be carefully chosen, given the possibility of acute renal failure, and drug interactions that increase the risk of bleeding. Acetaminophen is another most common analgesic that lacks the peripheral antiinflammatory effects of the NSAIDs. Both of these drug classes may have a very potent analgesic effect by an action in the spinal cord (10).

Tramadol is a mild μ-receptor agonist that results in analgesia more from its block of reuptake of serotonin and norepinephrine than an opioid-like effect (11). It lowers the seizure threshold, and so it must be used carefully in patients on other drugs, such as antidepressants, that result in the same effect. The hope was that this drug would be an acceptable substitute for patients who would otherwise require two to four vicodin or percocet per day has not been realized.

Opioid medications are appropriate for moderate to severe pain and their use was advocated by the World Health Organization in the classic analgesic ladder, but the recommendation was based more on pain intensity than its mechanism (1,12). Careful selection of patients to receive opioids on a chronic basis is warranted as risk versus benefit must be considered. Although there was a liberalization of attitude in the 1980s about providing low to moderate doses of opioids to patients with neuropathic pain, recent literature highlights serious side effects including immune system depression, endocrine failure, osteoporosis and opioid-induced hyperalgesia (13). It is strongly recommended that clinicians utilize an opioid agreement with any patients being prescribed opioids as a component of the treatment program, as this clearly lays out the rules of engagement for the patient and the physician (14). When a violation does occur, the subsequent course of action will be known to both parties. Office staff morale will still be markedly challenged, as these patients require particularly intense follow-up. Most clinicians demand that the patient on opioids demonstrate an increase in their ability to function in life as a prerequisite for continuing this therapy.

In the contemporary management of neuropathic pain, it is very common to use a combination of an antiepileptic drug (AED) with an antidepressant drug (15). The intended purpose is to suppress abnormal epileptiform activity in the nervous system, at and/or away from the location of the primary injury. Antidepressants block the re-uptake of serotonin and norepinephrine, which restore chemical deficiencies in the pain transmission system, that are associated with neuropathic pain, and those with sedative side effects are beneficial if used at night for aiding sleep (16). These drugs have many other serious side effects, and so patients must be carefully monitored as doses are titrated to the desired effect.

Other medications prescribed on an occasional basis as adjunctive agents include antihistamines, corticosteroids, muscle relaxants, immune modulators, stimulants, and topical patches and creams (1).

There has been a long history of attempting surgical procedures to affect pain control in patients with neuropathic pain (1). Many have fallen out of favor under the aegis of evidence-based medicine. Those that remain useful for selected patients include sympathectomy, rhizotomy, cordotomy, dorsal root entry zone (DREZ) lesioning, and peripheral nerve or deep brain stimulation. Many of these procedures are used in patients with cancer-related pain.

Any type of nerve block is an invasive procedure, and so there is a crucial need that the patient understands the risk/benefit ratio and be in physical and psychosocial accord when receiving such treatment. The expected benefits would be that a block or a series thereof would result in a significant reduction in pain such that the medications can also be reduced, and the patient's ability to function in some capacity would be improved (17). These criteria are relevant whether treating trigger points in a patient with myofascial pain, diagnosing facet syndrome with facet blocks that lead to radio-frequency denervation, or providing epidural steroid injections to a patient with radiculopathy. As pain medicine has progressed, new therapies are constantly being introduced. In the patient with low back pain, spinal cord stimulation (SCS) may be appropriate to manage residual pain in an extremity after a number of spinal surgical procedures have failed to help (18). There is growing evidence that SCS treatment has benefit in patients with peripheral vascular disease, complex regional pain syndrome (CRPS) and, perhaps, peripheral neuropathy. The benefit of this form of treatment is that a percutaneous trial allows the patient to experience SCS before an expensive implant procedure is pursued. The same can be said about intrathecal drug therapy which is used when patients are poorly tolerant of the side effects of the drugs needed to obtain marked benefit (19). The opioids and clonidine are commonly used and, occasionally, low-dose local anesthetics are added to the spinal injectate. In low back pain, there are a number of additional treatments that await validation and scientific determination of the most

appropriate patients, such as intradiscal electrothermal annuloplasty (IDET) (20). For sure, the more invasive and dramatic the intervention, the more the patient will expect the pain physician to be readily available. Again, very careful patient selection as to the individual and the timing of the intervention will go a long way in boosting the success for the patient and the satisfaction for all parties involved.

It is logical that a patient who has been relatively inactive due to pain will want to return to a higher level of function once the pain intensity and/or frequency begins to diminish. This may be best accomplished with the guidance of a physical therapist, as this approach provides for periodic progression of activity while nonmedication modalities (TENS, massage, heat/cold) are used to complement the physical rehabilitation (1,6,7,21). The patient's ability to be consistent will be challenged, as benefits are easily reversed if a lifestyle change is not also created. A logical progression of benefits is restoring range of motion, then increasing strength, and finally creating endurance as the patient expands his/her range of activities.

The support for and management of the patient's everchanging psychosocial milieu gained from the involvement of a psychologist or psychiatrist is crucial as the fast-achieved decrease in pain from medications, surgery, and interventional therapy occurs (22). Patients need to be actively encouraged to consider how their lives will change when they are "better," to understand what barriers there may be to achieving this, and be motivated to work toward achievable psychosocial goals. They may need help coping with the legal and administrative processes that assist with their social and vocational rehabilitation.

The term complementary therapy (aka alternative medicine) refers to a broad range of pain management techniques that have not necessarily been in the mainstream of modern medicine (1). Yet, the evidence is that these therapies are a popular choice among patients and are increasingly being chosen for use in conjunction with traditional therapy or in place of it. Generally, these treatments range from TENS and acupuncture to energy therapy, mind–body therapy, herb and vitamin and diet therapies, and manipulation therapy.

CONCLUSIONS

The contemporary standard is that the pain medicine physician will 1) direct the patient's work-up and not rely on multiple additional consultants' opinions in establishing what is actually wrong with the patient, and 2) provide modern-day therapeutic options in a coordinated program, targeted at what is actually wrong with the patient, such that the goals of pain management are achieved over time. This approach demands very thoughtful selection of any therapy for a given patient and continuation of only those treatments proving to be of definite benefit to the patient. Education of all involved in that patient's care is essential, as referral back to the source or primary care physician will eventually be expected.

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