

CHRONIC PAIN MEDICAL TREATMENT GUIDELINES

Part 1: Introduction

The chronic pain medical treatment guidelines apply when the patient has chronic pain as determined by following the clinical topics section of the Medical Treatment Utilization Schedule (MTUS). In following the clinical topics section, the physician begins with an assessment of the presenting complaint and a determination as to whether there is a “red flag for a potentially serious condition” which would trigger an immediate intervention. Upon ruling out a potentially serious condition, conservative management is provided. If the complaint persists, the physician needs to reconsider the diagnosis and decide whether a specialist evaluation is necessary. If the patient continues to have pain that persists beyond the anticipated time of healing, without plans for curative treatment, such as surgical options, the chronic pain medical treatment guidelines apply. This provides a framework to manage all chronic pain conditions, even when the injury is not addressed in the clinical topics section of the MTUS.

The chronic pain medical treatment guidelines consist of two parts. Part 1 is the introduction. Part 2 consists of pain interventions and treatments. With a few exceptions, Part 2 is primarily an adaptation of evidence-based treatment guidelines, from the Work Loss Data Institute’s Official Disability Guidelines (ODG) Treatment in Workers’ Comp – Chapter on Pain (Chronic). The version adapted is dated October 23, 2008, and it is being adapted with permission from the ODG publisher. Any section not adapted directly from ODG is labeled “[DWC]”.

Definitions:

Chronic Pain: Chronic pain is defined as “*any pain that persists beyond the anticipated time of healing.*”

Types of Pain: Pain mechanisms can be broadly categorized as nociceptive or neuropathic.

Nociceptive pain: Nociceptive pain is the pain caused by activation of nociceptors, which are sensory neurons found throughout the body. A nociceptor is “a receptor preferentially sensitive to a noxious stimulus or to a stimulus which would become noxious if prolonged.”

Neuropathic Pain: Neuropathic pain is “pain initiated or caused by a primary lesion or dysfunction of the nervous system.” Normal nociception would not be considered dysfunction of the nervous system.

Overview

Chronic pain has a huge impact on the individual and society as a whole. It is the primary reason for delayed recovery and costs in the workers’ compensation system. Most chronic pain problems start with an acute nociceptive pain episode. Therefore, effective early care is paramount in managing chronic pain. Given the importance of pain in healthcare, it is presently the subject of intensive scientific research which in turn has generated a growing evidence base regarding the diagnosis, treatment and management of painful conditions.

The International Association for the Study of Pain (IASP) states that pain is “*an unpleasant sensory or emotional experience associated with actual or potential tissue damage, or described in terms of such damage.*” (Merskey and Bogduk 1994) This describes pain as a subjective experience; therefore, unlike hypertension or diabetes, there is no objective measurement for pain intensity. Analysis of the objective

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data (psychosocial assessment, physical exam findings, imaging results, lab tests) is needed to evaluate the patient's subjective report of pain.

The experience of pain is a complex phenomenon. Multiple models have evolved over time to explain it. Traditionally, the biomedical model explains pain through etiologic factors (e.g., injury) or disease whose pathophysiology results in pain. It is now understood that this classic biomedical approach to understanding and treating pain is incomplete. Its exclusive application can result in unrealistic expectations on the part of the physician and patient, inadequate pain relief, and excessive disability in those with pain that persists well after the original injury has healed.

The biopsychosocial model of pain instead recognizes that pain is ultimately the result of the pathophysiology plus the psychological state, cultural background/belief system, and relationship/interactions with the environment (workplace, home, disability system, and health care providers). Current research is investigating the neurobiological causes for persistent pain and how structural and functional changes in the central nervous system may serve to amplify and maintain the experience and disability of certain pain condition. (Siddall and Cousins 2007) This is an area of intensive research which will contribute to the scientific evidence base in years to come.

Pain Mechanisms

Within the biomedical model, pain mechanisms are broadly categorized as nociceptive or neuropathic. Inflammatory mechanisms may also play a role. While there are similarities, each mechanism has unique features and characteristics. This mechanistic approach may provide greater insight into appropriate therapeutic strategies.

Several reviews have detailed the mechanisms and mediators of pain and the components of the ascending and descending pain pathways. In nociceptive pain, signal transduction in nociceptor somatosensory afferent terminals converts mechanical, electrical, thermal, or chemical energy into an action potential which is transmitted to the dorsal horn of the spinal cord by specialized nerve fibers. The signal is then transmitted through ascending cortical pathways to the brain. Nociceptive signals within the brain are sent to two major areas: the somatosensory cortex, where the sensory component of pain is represented in the brain, and the limbic forebrain system, which is the neural substrate for the emotional component of pain experience responsible for feelings of suffering.

Since these areas of the brain interact with other areas of the brain, past memories, external environmental factors, and internal cognitive factors (i.e., psychosocial factors) influence or modulate the pain experience. How the brain integrates all the input is, in part, the basis for the biopsychosocial approach to the management of pain.

Neuropathic pain is "pain initiated or caused by a primary lesion or dysfunction of the nervous system." (Turk and Okifuji 2001) The altered modulation of the pain response in patients with neuropathic pain causes a state of hyperexcitability and continuous pain signal output in the absence of peripheral tissue damage. "Neuropathic pain can result from injury or trauma (e.g., surgery), infection (e.g., post herpetic neuralgia), endocrine (e.g., diabetes, hypothyroidism), demyelination (e.g., multiple sclerosis), errors in metabolism, neurodegenerative disorders (e.g., Parkinson's disease), or damage directly to the spinal cord or brain (e.g., thalamic stroke)." (Backonja in Loeser, 2001)" (Mackey and Maeda 2004)

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Neuropathic pain is characterized by symptoms such as lancinating, electric shock-like, paroxysmal, tingling, numbing, and burning sensations that are distinct from nociceptive pain.

Many neuropathic pain states have traditionally been thought of as having a primary peripheral etiology. Recent investigation, however, using functional neuroimaging techniques, demonstrates that many neuropathic and other chronic pain conditions may have a large centralized component (central vs. peripheral model). These conditions include, but are not limited to, chronic low back pain (CLBP), fibromyalgia, irritable bowel syndrome, and Complex Regional Pain Syndrome (CRPS)/Reflex Sympathetic Dystrophy (RSD). (Mackey and Maeda 2004)

Inflammation can play a significant role in both nociceptive and neuropathic pain. Inflammation occurs when cells and tissue are damaged and release chemical mediators, commonly referred to as “the inflammatory soup,” that not only induce an inflammatory response but also sensitize nociceptors and other somatosensory components of the nervous system. Peripheral sensitization occurs when inflammatory mediators cause a reduction in the threshold required for nociceptor activation. A similar short-term central sensitization can occur in which there is an increase in neuronal excitability and responsiveness in the dorsal horn. In central sensitization, chemical mediators for inflammation can also upregulate the expression of genes that alter synaptic transmission.

Because of neuronal plasticity, current research is showing that protracted central sensitization (neuronal hyperexcitability) can result in long-term changes that may be important in the transition from acute to chronic pain and the development of chronic pain syndromes. Patients with these syndromes generally have severe and persistent pain that is disproportionate to the tissue injury.

Models

Models are the conceptual framework to understand pain and serve to establish parameters for reasonable outcomes and acceptable standards of care. These are helpful for physicians, patients, families, healthcare providers, carriers, and compensation systems. Several different models of pain have developed over time, each with strengths and weaknesses.

Acute vs. Chronic Pain Model

In many situations, acute pain serves as a highly adaptive and beneficial experience. Fundamentally, it serves as a protective warning of actual or impending tissue damage. Acute musculoskeletal pain is a common example in the injured worker and is often a signal of real or impending tissue damage.

Most acute pain is self-limited and may respond to short term administration of analgesics and conservative therapies. However, continued activation of nociceptors with less than adequate pain control can lead to peripheral and central sensitization, a risk factor for persistent pain with prolonged disability, delayed return to baseline function, and delayed return to work.

Chronic pain can be distinguished from acute pain by more than just the time course. Whereas acute pain serves as a protective warning signal, chronic pain has no known survival benefit. Evidence suggests that generation and subsequent maintenance of chronic pain, as opposed to acute pain, may

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involve changes in central pain processing mediated through mechanisms of neural plasticity and ultimately leading to hyper-excitability of central structures in the spinal cord and brain. To complicate matters, unremitting pain may be associated with depression and/or anxiety.

As a practical matter, it is noted that “[t]he distinction between acute and chronic pain is somewhat arbitrary” and “[c]hronicity may be reached from one to six months postinjury.” ACOEM recognizes that the most clinically useful definition might be “chronic pain persists beyond the usual course of healing of an acute disease or beyond a reasonable time for an injury to heal.” (ACOEM Medical Treatment Guidelines Chapter 6 page 108.) The Division of Workers’ Compensation definition of chronic pain, “any pain that persists beyond the anticipated time of healing,” is derived from Bonica’s Management of Pain (Turk and Okifuji, 2001). Therefore, it is a clinical decision to recognize chronicity or persistence of pain when 1) the condition is not improving over time, 2) fails to improve with treatments directed to the specific injured body part (see Clinical Topics section of the MTUS), or 3) in the absence of a specifically correctable anatomic lesion (see Clinical Topics section of the MTUS). Often it takes a number of months for the clinician to recognize when pain becomes chronic.

Illness Behavior Model

As previously stated pain is a subjective experience, influenced and modulated by cognitive, emotional, and environmental elements. Psychosocial factors can affect the perception and expression of pain. These might include, but are not limited to, a tendency toward anxiety, depression, somatization, fear avoidance, emotional lability, catastrophizing, job dissatisfaction and embellishment.

Further, while frank malingering is rare, secondary gain factors, such as disability income and avoidance of perceived unpleasant tasks can impact the overall clinical presentation. Taken together, psychosocial factors may play a larger role in eventual patient outcome than obvious somatic factors as determined by the nature and extent of the original injury. Efforts directed solely to the management of possible pain generators without addressing psychosocial factors may result in a suboptimal outcome.

Biomedical vs. Biopsychosocial Model

The traditional biomedical model “assumes disease to be fully accounted for by deviations from the norm of measurable biological (somatic) variables” (Engel 1977). Thus there is always a direct causal relationship between a specific pathophysiologic process and the presence and extent of a particular symptom. While this model has served the medical community well in the treatment and cure of certain diseases (e.g. infectious diseases), it has generally failed in the treatment of chronic illness including persistent pain. For example, for decades there has been an approach to identify the “pain generator” and remove it by cutting it out or blocking it.

In 1977 Engel proposed an alternative, the biopsychosocial model, which focuses greater attention on the patient, rather than presumed pathophysiology. The biopsychosocial model approaches pain and disability as a complex interplay of biological, psychological and social factors. These psychosocial factors can be easily assessed.

The following chart contrasts these two pain models (Hanson and Gerber 1993):

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Pain Models

Biomedical model	Biopsychosocial model
Most appropriate for acute pain conditions	More useful for those with chronic pain conditions
Emphasizes peripheral nociception	Recognizes the role that central mechanisms play in modulating peripheral nociception or generating the experience of pain in the absence of nociception
Focus on physical disease mechanisms	Recognizes the importance of illness behavior including cognitive and emotional responses to pain
Reductionistic approach to understanding and treating pain	Multidimensional systems approach to understanding and treating pain
Reliance on medical management approaches	Utilization of self-management approaches

Linton identified strong evidence that psychosocial variables are strongly linked to the transition from acute to chronic pain disability and that psychosocial variables generally have more impact than biomedical or biomechanical factors on back pain disability. (Linton 2000) Thus, when clinical progress is insufficient, the clinician should always be prepared to address confounding psychosocial variables, in a coordinated, multidisciplinary manner.

Medical vs. Self-Management Model

Understandably, patients want their chronic pain “cured” or eliminated. Unfortunately, there are presently no definitive cures for the majority of persistent pain problems, such as axial spine pain, peripheral neuropathies, fibromyalgia, etc. As is the case with all chronic medical conditions, chronic pain must be managed, not cured. In the medical model, responsibility resides primarily with the physician. The self-management approach places primary responsibility on the person with chronic pain. Currently, self-management strategies can significantly improve a patient’s function and quality of life, while reducing subjective experiences of pain. It is important to educate patients on this distinction, to avoid persistent and unrealistic expectations for an elusive cure, where none exists. This unrealistic curative view, often unwittingly fostered by healthcare providers or others, predictably leads to repeated failures, delayed recovery, and unnecessary disability and costs.

Risk Stratification

Importance of early identification

Patients not responding to initial or subacute management (see Clinical Topics Section MTUS) or those thought to be at risk for delayed recovery should be identified as early as possible. Simple screening questionnaires may be used early in the clinical course to identify those at risk for delayed recovery. Those at risk should be aggressively managed to avoid ineffective therapeutic efforts and needless disability. Factors that help identify at-risk patients include: (1) those unresponsive to conservative therapies demonstrated to be effective for specific diagnoses; (2) significant psychosocial factors negatively impacting recovery; (3) loss of employment or prolonged absence from work; (4) previous history of delayed recovery or rehabilitation; (5) lack of employer support to accommodate patient

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needs; and (6) a history of childhood abuse (verbal, physical, mental). Of these factors, lost time from work has the highest value in predicting those patients who will experience delayed recovery.

Subacute Delayed Recovery

Complaints of pain are the most common obstacle to return to work. Undertreatment of pain and/or unrealistic expectations may play a role in delayed recovery. However, the subacute phase is a critical time for the injured worker, as additional time away from work may result in adverse medical, familial, economic, and psychological consequences (including overtreatment, depression and/or anxiety, which can exacerbate pain complaints). When the physician recognizes that the problem is persisting beyond the anticipated time of tissue healing, the working diagnosis and treatment plan should be reconsidered, and psychosocial risk factors should be identified and addressed. If necessary, patients should be directed toward resources capable of addressing medical and psychosocial barriers to recovery.

Patients with Intractable Pain

Studies have shown that the longer a patient remains out of work the less likely he/she is to return. Similarly, the longer a patient suffers from chronic pain the less likely treatment, including a comprehensive functional restoration multidisciplinary pain program, will be effective. Nevertheless, if a patient is prepared to make the effort, an evaluation for admission for treatment in a multidisciplinary treatment program should be considered.

A patient suffering from severe intractable pain who does not qualify for participation in a chronic pain program or who has failed a chronic pain program “should have access to proper treatment of his or her pain.” California Health and Safety Code section 124960

Assessment Approaches

History and Physical Examination

Thorough history taking is always important in clinical assessment and treatment planning for the patient with chronic pain, and includes a review of medical records. Clinical recovery may be dependent upon identifying and addressing previously unknown or undocumented medical and/or psychosocial issues. A thorough physical examination is also important to establish/confirm diagnoses and to observe/understand pain behavior. The history and physical examination also serves to establish reassurance and patient confidence. Diagnostic studies should be ordered in this context and not simply for screening purposes.

If a diagnostic workup is indicated and it does not reveal a clinically significant contraindication, the physician should encourage the patient to engage in an active rehabilitation program. Effective treatment of the chronic pain patient requires familiarity with patient-specific past diagnoses, treatment failures/successes, persistent complaints and confounding psychosocial variables (e.g., history of abuse, anxiety, depression, fear-based avoidance of activity, catastrophizing, self-medication with alcohol or other drugs, patient/family expectations, medical-legal/claims management issues, and employer/supervisor/worksites).

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Evaluation of Psychosocial Factors

For patients with a complex presentation, psychosocial factors have proven better predictors of chronicity than clinical findings. Such variables/factors can and should be assessed.

Functional Restoration Approach to Chronic Pain Management

Many injured workers require little treatment, and their pain will be self-limited. Others will have persistent pain, but can be managed with straightforward interventions and do not require complex treatment. However, for patients with more complex or refractory problems, a comprehensive multidisciplinary approach to pain management that is individualized, functionally oriented (not pain oriented), and goal-specific has been found to be the most effective treatment approach. (Flor, Fydrich et al. 1992; Guzman, Esmail et al. 2001; Gatchel and Bruga 2005)

Functional restoration is an established treatment approach that aims to minimize the residual complaints and disability resulting from acute and/or chronic medical conditions. Functional restoration can be considered if there is a delay in return to work or a prolonged period of inactivity according to ACOEM Practice Guidelines, 2nd Edition, page 92. Functional restoration is the process by which the individual acquires the skills, knowledge and behavioral change necessary to avoid preventable complications and assume or re-assume primary responsibility (“locus of control”) for his/her physical and emotional well-being post injury. The individual thereby maximizes functional independence and pursuit of vocational and avocational goals, as measured by functional improvement (see 8 CCR § 9792.20 (f)).

Independent self-management is the long-term goal of all forms of functional restoration. The process and principles of functional restoration can be applied by a physician or a well integrated interdisciplinary team to a full range of problems that include acute injuries (e.g., sports, occupational), catastrophic injuries (e.g., brain and spinal cord injury), and chronic conditions (e.g., chronic pain, multiple sclerosis, etc.) and is the basis for medical rehabilitation and disability management. The principles of functional restoration apply to all conditions in general, and are not limited to injuries or pain.

Multiple treatment modalities, (pharmacologic, interventional, psychosocial/behavioral, cognitive, and physical/occupational therapies) are most effectively used when undertaken within a coordinated, goal-oriented, functional restoration approach (see Part 2).

Using medications in the treatment of pain requires a thorough understanding of the mechanism underlying the pain as well as to identify comorbidities that might predict an adverse outcome. As stated on page 47 of the ACOEM Practice Guidelines, “[c]onsideration of comorbid conditions, side effects, cost, and efficacy of medication versus physical methods and provider and patient preferences should guide the physician’s choice of recommendations.” Choice of pharmacotherapy must be based on the type of pain to be treated and there may be more than one pain mechanism involved. The physician should tailor medications and dosages to the individual taking into consideration patient-specific variables such as comorbidities, other medications, and allergies. The physician should be knowledgeable regarding prescribing information and adjust the dosing to the individual patient. If the physician prescribes a medication for an indication not in the approved FDA labeling, he or she has the

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responsibility to be well informed about the medication and that its use is scientific and evidence-based. When effective, medications provide a degree of analgesia that permits the patients to engage in rehabilitation, improvement of activities of daily living, or return to work. There are no drugs that have been proven to reverse, cure, or “heal” chronic pain. Periodic review of the ongoing chronic pain treatment plan for the injured worker is essential according to the Medical Board of California Pain Guidelines for controlled substances.

When choosing an invasive procedure to treat a specific chronic pain problem, a complex judgment is necessary to make sure that the desired and expected outcome is worth the risk involved, depending on the procedure and individual risk factors.

Please refer to Part 2 to find specific guidelines on chronic pain treatments that include pharmacotherapy, invasive pain procedures, psychological and behavioral therapies, physical and occupational therapies, and other approaches. Selection of treatment must be tailored for the individual case. Whether the treatment is provided by an individual provider, a multidisciplinary group of providers, or tightly integrated interdisciplinary pain program, it is important to design a treatment plan that explains the purpose of each component of the treatment. Furthermore, demonstration of functional improvement is necessary at various milestones in the functional restoration program in order to justify continued treatment.

Pain Outcomes and Endpoints

Pain is subjective. It cannot be readily validated or objectively measured (AMA Guides, 5th Edition, page 566). Furthermore subjective reports of pain severity may not correlate well with its functional impact. Thus, it is essential to understand the extent that function is impeded by pain (AMA Guides, 5th Edition, page 578).

The physician treating in the workers' compensation system must be aware that just because an injured worker has reached a permanent and stationary status or maximal medical improvement does not mean that they are no longer entitled to future medical care. The physician should periodically review the course of treatment of the patient and any new information about the etiology of the pain or the patient's state of health. Continuation or modification of pain management depends on the physician's evaluation of progress toward treatment objectives. If the patient's progress is unsatisfactory, the physician should assess the appropriateness of continued use of the current treatment plan and consider the use of other therapeutic modalities. When prescribing controlled substances for pain, satisfactory response to treatment may be indicated by the patient's decreased pain, increased level of function, or improved quality of life. (http://www.medbd.ca.gov/pain_guidelines.html).

Additionally, fluctuations are likely to occur in the natural history of patients with chronic pain. Exacerbations and “breakthrough” pain may occur during the chronic clinical course and adjustments to the treatment will be necessary.

Conclusion

We now have an appreciation that chronic pain is associated with structural and functional changes of the peripheral and central nervous system. These changes can lead to the generation and maintenance of

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chronic pain conditions with its associated disability. While biologic mechanisms play a role in the perception of pain, it is also important to recognize that psychological and environmental factors are important. Recognition of these factors will allow the physician to better (1) treat the recently injured patient, (2) identify the “at risk” patient, and (3) refer the patient with intractable chronic pain to the appropriate resources. A full assessment of the patient is required to determine the best approach in any given case.

Therapy for chronic pain ranges from single modality approaches for the straightforward patient to comprehensive interdisciplinary care for the more challenging patient. Therapeutic components such as pharmacologic, interventional, psychological and physical have been found to be most effective when performed in an integrated manner. All therapies are focused on the goal of functional restoration rather than merely the elimination of pain and assessment of treatment efficacy is accomplished by reporting functional improvement. Typically, with increased function comes a perceived reduction in pain and increased perception of its control. This ultimately leads to an improvement in the patient’s quality of life and a reduction of pain’s impact on society.

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