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Pain is a common condition in persons living with disabilities and is a common problem seen by physiatrists. This article reviews the prevalence and impact of chronic pain in rehabilitation populations commonly seen by physiatrists and other rehabilitation professionals. Several issues that affect the identification and understanding of chronic pain in rehabilitation populations are reviewed.

Central Hypersensitivity in Chronic Pain: Mechanisms and Clinical Implications 287
Michele Curatolo, Lars Arendt-Nielsen, and Steen Petersen-Felix

Patients who have various chronic pain conditions display a state of hypersensitivity of the central nervous system that amplifies the nociceptive input arising from damaged tissues. This mechanism is clinically relevant in that it likely contributes to pain and disability to a substantial extent. Treatment strategies are available but are limited in their applicability and efficacy in patients.

Patient Evaluation and General Treatment Planning 303
Scot Gerald Fechtel

Evaluation of patients with chronic pain is a challenging problem. The physician must be aware of the physiology and psychology of chronic pain and investigate each patient in a thorough and compassionate fashion. A disciplined thought process examining each method of evaluation leads to a clinically useful treatment plan.

Physical Agents Used in the Management of Chronic Pain by Physical Therapists 315
Roger J. Allen

Physical agents, such as superficial heat and cold, therapeutic ultrasound, shortwave diathermy, low-wattage lasers, electrical stimulation, and desensitization therapy, have the potential to modulate pain or influence tissue healing. The use of these agents in the management of chronic pain is adjunctive: they are used to facilitate attenuation of pain sensations, augment tissue healing, or enhance the effectiveness of other therapeutic elements in overall treatment geared toward functional restoration. The scope of usage of agents by physical therapists in the treatment of patients with chronic pain merits inquiry into the strength and quality of clinical efficacy evidence supporting their application. Prescriptive considerations for physical agents to help manage chronic pain should take into account the agent's theoretical suitability to address the specific patient's pain generation locus and the potential psychobehavioral impact of the use of passive palliative modalities.

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Carin E. Dugowson and Priya Gnanashanmugam

Nonsteroidal anti-inflammatory drugs, including COX-2 selective drugs, are often used for acute and chronic musculoskeletal pain, including osteoarthritis, trauma, overuse syndromes, and compression fractures. Although these medications are often well tolerated in the young and otherwise healthy patient, the chronic use of these medications can lead to multiple medical problems, most commonly related to the gastrointestinal tract. Recently, concerns about cardiovascular adverse effects have been raised, particularly in the COX-2 drugs. Dosing and duration of therapy should be adjusted for comorbidities. CBC and renal and hepatic function should be checked at intervals of 3 to 6 months, depending on the patient.

Opioids in the Treatment of Chronic Pain: Legal Framework and Therapeutic Indications and Limitations 355
Donna Bloodworth

This review will enable clinicians to develop informed therapeutic goals and limits for patients sustaining chronic pain by summarizing state and federal legislation regulating opioid prescription, the history and prevalence of opiophobia, and the efficacy, limitations, indications, and contraindications of opioids. Additionally, the use of urine drug screens, opioid rotation, and opioids in neuropathic pain is discussed.

Antidepressant and Anticonvulsant Medication for Chronic Pain 381
Mark D. Sullivan and James P. Robinson

Antidepressants and anticonvulsants have been shown to be efficacious in the treatment of neuropathic pain, chronic headache, and

other chronic pain conditions. They may be useful in the treatment of disorders in which central nervous system hypersensitivity contributes to pain. They provide valuable alternatives or adjuncts to the use of opioid medications in the treatment of chronic pain. Antidepressants have several potential roles in the treatment of chronic pain in addition to their analgesic effects. Specifically, they effectively address the sleep disturbance, depression, and anxiety that are common in patients with chronic pain.

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Alec L. Meleger

Muscle relaxants make up a heterogeneous group of pharmaceuticals that are used in the treatment of muscle-related pain. They differ widely in their mechanisms of action, tolerability, and the potential for adverse effects, requiring close clinical monitoring for some. These agents can have a significant therapeutic role as part of the polymodal pharmacologic treatment of chronic pain.

Psychologic Interventions for Chronic Pain **415**
Travis L. Osborne, Katherine A. Raichle, and Mark P. Jensen

In recent decades, comprehensive biopsychosocial models of chronic pain have replaced restrictive biomedical models as it has become increasingly evident that the nature and maintenance of chronic pain are influenced by physiologic and nonphysiologic factors. This article reviews several of the primary psychologic treatment approaches used for persons with chronic pain, including operant behavioral therapy, cognitive-behavioral therapy, hypnotic analgesia, and motivational interviewing. For each treatment approach, methods of incorporating the principles of these interventions into a medical practice and for considering when to refer patients for more specialized psychologically based pain treatment are discussed.

Multidisciplinary and Interdisciplinary Management of Chronic Pain **435**
Steven Stanos and Timothy T. Houle

Multidisciplinary and interdisciplinary pain management programs incorporate a biopsychosocial model in assessing and treating pain and result in pain reduction, improved quality of life, and psychosocial functioning. Additionally, return-to-work and vocational outcomes may be seen in selected patients. Treatment teams may include a physiatrist, a physical or occupational therapist, a pain psychologist, a relaxation (biofeedback) therapist, vocational and therapeutic recreational therapists, social workers, and nurses. The key component to program success is collaborative ongoing communication among team members, the patient, and the case manager.

Complementary Medicine in Chronic Pain Treatment 451
Charles A. Simpson

This chapter looks at therapies that are considered "alternative" to conventional medical approaches. A definition of "complementary and alternative" medicine is considered in the context of the complex and clinically challenging field of pain medicine. A rationale for studying unorthodox treatments of chronic pain is presented. The challenges of an evidence-based approach to incorporating complementary therapies are explored, and a brief survey of several commonly available complementary medicine therapies is provided.

Traumatic Brain Injury and Pain 473
Kristen Brewer Sherman, Myron Goldberg, and Kathleen R. Bell

The co-occurrence of traumatic brain injury (TBI) and pain is quite frequent and presents a number of challenges to the medical practitioner. The distinct nature and extent of these challenges calls for considering the co-existence of TBI and pain a unique medical entity. Clearly, from a research standpoint, the area is in its infancy. The clinician is often left with adapting standard techniques effective for evaluating and treating pain in patients without TBI. Such adaptations require a readiness to recognize how pain affects the presence and course of TBI-related symptoms and, in turn, how TBI symptoms affect the presence and course of pain. Given the myriad factors that can affect outcome, effective evaluation and treatment of this co-occurring problem need to rely on a biopsychosocial model, which encourages consideration of a broad perspective of possible causes and care approaches as well as use of multiple disciplines.

Treatment of Fibromyalgia, Myofascial Pain, and Related Disorders 491
Joanne Borg-Stein

Chronic muscle pain is a common complaint among patients who seek care for musculoskeletal disorders. A spectrum of clinical presentations exists, ranging from focal or regional complaints that usually represent myofascial pain syndromes to more widespread pain that may meet criteria for a diagnosis of fibromyalgia. This article addresses the epidemiology, pathophysiology, and clinical management of myofascial pain syndrome and fibromyalgia. These conditions are challenging to treat and require physiatrists to be aware of the wide range of pharmacologic, rehabilitative, and psychosocial interventions that can be helpful.

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