Contents

Foreword: The Management of Chronic Pain: What Do We Know, What Do We Do, and How Should We Redesign Our Comprehensive Assessment and Treatment in order to Provide for More Patient-Centered Care? xvii
Edward R. Bollard

Preface: Yes, You Can Manage Chronic Pain xix
Charles E. Argoff

Background

Chronic Pain Management: An Overview of Taxonomy, Conditions Commonly Encountered, and Assessment 1
David Walk and Michelle Poliak-Tunis

Chronic pain has multiple mechanisms that result in pain amplification and maintenance, including central and peripheral sensitization and altered modulation of pain perception. Assessment of pain requires comprehensive assessment of symptoms and signs, suspected pain mechanisms, and the patient's biopsychosocial context. Multiple validated measures exist for the assessment of pain symptoms, pain-related disability, psychological impact of pain, and candidacy for opioid management.

The Acute to Chronic Pain Transition: Can Chronic Pain Be Prevented? 17
John-Paul J. Pozek, David Beausang, Jaime L. Baratta, and Eugene R. Viscusi

Chronic postsurgical pain (CPSP) is a distressing disease process that can lead to long-term disability, reduced quality of life, and increased health care spending. Although the exact mechanism of development of CPSP is unknown, nerve injury and inflammation may lead to peripheral and central sensitization. Given the complexity of the disease process, no novel treatment has been identified. The preoperative use of multimodal analgesia has been shown to decrease acute postoperative pain, but it has no proven efficacy in preventing development of CPSP.

What Do We Know About the Pathophysiology of Chronic Pain? Implications for Treatment Considerations 31
Gerald M. Aronoff

We discuss the complex features of the pathophysiology of chronic pain and the implications for treatment and provide an overview of nociceptive processes, neuropathic pain, cold hyperalgesia, peripheral nerve injury, wind-up pain, central sensitization, and common clinical presentation and diagnostic criteria. Advanced medicine has proven that chronic pain need not involve any structural pathology as pain is a complex biopsychosocial experience. Treatment of the specific mechanisms responsible for pain should be aimed at preventing and or reducing dysfunctional neuro-plasticity resulting from poorly controlled chronic pain. Further study
is needed to reduce the probability and of persistent changes that cause chronic pain.

**Chronic Pain Treatment Approaches**

**Biopsychosocial Approach to Assessing and Managing Patients with Chronic Pain**

Martin D. Cheatle

Chronic pain affects nearly one-third of the American population. Chronic pain can lead to a variety of problems for a pain sufferer, including developing secondary medical problems, depression, functional and vocational disability, opioid abuse, and suicide. Current pain care models are deficient in providing a necessary comprehensive approach. Most patients with chronic pain are managed by primary care clinicians who are typically ill prepared to effectively and efficiently manage these cases. A biopsychosocial approach to evaluate and treat chronic pain is clinically and economically efficacious, but unique delivery systems are required to meet the challenge of access to specialty care.

**Multimodal Treatment of Chronic Pain**

Rebecca Dale and Brett Stacey

Most patients with chronic pain receive multimodal treatment. There is scant literature to guide us, but when approaching combination pharmacotherapy, the practitioner and patient must weigh the benefits with the side effects; many medications have modest effect yet carry significant side effects that can be additive. Chronic pain often leads to depression, anxiety, and deconditioning, which are targets for treatment. Structured interdisciplinary programs are beneficial but costly. Interventions have their place in the treatment of chronic pain and should be a part of a multidisciplinary treatment plan. Further research is needed to validate many common combination treatments.

**An Overview of Pharmacologic Management of Chronic Pain**

Benjamin R. Beal and Mark S. Wallace

Patients with chronic pain can be challenging to manage and historically providers have relied on opiates to treat pain. Recent studies have brought into question the safety and efficacy of chronic opiate therapy in the non-cancer population. There is a vast amount of literature to support the use of nonsteroidal anti-inflammatory medications, antidepressants, anticonvulsants, topical agents, cannabinoids, and botulinum toxin either in conjunction with or in lieu of opioids. Intrathecal drug delivery systems can deliver some of these medications directly to their primary site of action while minimizing the side effects seen with systemic administration.

**Exploring the Use of Chronic Opioid Therapy for Chronic Pain: When, How, and for Whom?**

Abigail Brooks, Courtney Kominek, Thien C. Pham, and Jeffrey Fudin

This article provides a broad overview regarding intent to initiate and consider ongoing chronic opioid therapy (COT) for treatment of chronic
noncancer pain (CNCP). COT should be an individualized decision based on a comprehensive evaluation, assessment, and monitoring. It is imperative that providers discuss various risks and benefits of COT initially and at follow-up visits, and continue appropriate monitoring and follow-up at regular intervals. The decision to initiate or continue opioid therapy is based on clinical judgment; however, it is understood that opioid and other medication therapy represent one piece of the complete treatment plan for patients with CNCP.

The Role of Invasive Pain Management Modalities in the Treatment of Chronic Pain
Heather Smith, Youngwon Youn, Ryan C. Guay, Andras Laufer, and Julie G. Pilitsis

Invasive analgesic therapies provide an alternative to medical management of chronic pain. With the increasing incidence of chronic pain not only in the United States but worldwide, more therapies have evolved to address the growing need for pain relief options. These therapies include spinal injections, nerve blocks, radiofrequency ablation, neurostimulation, and intrathecal drug delivery.

Common Chronic Pain Conditions

Managing Chronic Headache Disorders
Grace Forde, Robert A. Duarte, and Noah Rosen

Headaches are a very common disorder, more common than asthma and diabetes combined. Migraine is the most common headache disorder, but it remains underdiagnosed and therefore undertreated. The treatment of migraines is divided into acute and prophylaxis. Patients who are experiencing 8 or more headache days a month or those who experience disability with their headaches as determined by the Migraine Disability Assistance Score or MIDAS should be placed on prophylaxis.

Managing Osteoarthritis and Other Chronic Musculoskeletal Pain Disorders
Andrew Dubin

Osteoarthritis (OA) is a common problem in society and can lead to significant disability and impairment of a patient’s capacity to perform activities of daily living. The focus of this article is various treatment options for the management of OA, with emphasis on conservative management. The emphasis is on the role of exercise, pharmacology, intra-articular joint injections, and bracing options in the management of OA.

Managing Neuropathic Pain
Robert Carter Wellford Jones III, Erin Lawson, and Miroslav Backonja

Neuropathic pain (NP) arises from injuries or diseases affecting the somatosensory component of the nervous system at any level of the peripheral or central nervous system. NP is diagnosed based on common neurologic signs and symptoms. NP is best treated with a combination
of multiple therapeutic approaches, and treatments include conservative, complementary, medical, interventional, and surgical treatment modalities. Goals of treatment are the same as in pain management and include improvement in pain control and in coping skills as well as restoration of functional status. Most patients with NP benefit most from an individualized, multimodal approach that emphasizes both pain and function.

Acute and Chronic Low Back Pain
Nathan Patrick, Eric Emanski, and Mark A. Knaub

Low back pain is an extremely common presenting complaint that occurs in upward of 80% of persons. Treatment of an acute episode of back pain includes relative rest, activity modification, nonsteroidal anti-inflammatories, and physical therapy. Patient education is also imperative, as these patients are at risk for further future episodes of back pain. Chronic back pain (>6 months’ duration) develops in a small percentage of patients. Clinicians’ ability to diagnose the exact pathologic source of these symptoms is severely limited, making a cure unlikely. Treatment of these patients should be supportive, the goal being to improve pain and function.

Managing Chronic Pain in Special Populations with Emphasis on Pediatric, Geriatric, and Drug Abuser Populations
Kyle M. Baumbauer, Erin E. Young, Angela R. Starkweather, Jessica W. Guite, Beth S. Russell, and Renee C.B. Manworren

Research has typically focused on otherwise healthy adults with chronic pain conditions; however there are distinct groups of individuals with increased vulnerability for chronic pain. These groups are defined by age and life circumstances associated with increased risk of injury and less effective pain treatment. Chronic pain is challenging to manage and a significant health issue in pediatric, geriatric, and drug abuser populations. This article focuses on psychosocial, physiologic, and genetic mechanisms underlying chronic pain in these populations, and highlights the need for interdisciplinary teams to manage chronic pain with personalized multimodal approaches for those with greatest risk.

Emerging Treatment
Is Platelet-Rich Plasma a Future Therapy in Pain Management?
Nebojsa Nick Knezevic, Kenneth D. Candido, Ravi Desai, and Alan David Kaye

Platelet-rich plasma (PRP) has the potential to regenerate tissues and decrease pain through the effects of bioactive molecules and growth factors present in alpha granules. Several PRP preparation systems are available with varying end products, doses of growth factors, and bioactive molecules. This article presents the biology of PRP, the preparation of PRP, and the effects PRP-related growth factors have on tissue healing and repair. Based on available evidence-based literature, the success of
PRP therapy depends on the method of preparation and composition of PRP, the patient's medical condition, anatomic location of the injection, and the type of tissue injected.