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Table of Contents

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Focus Article

747 **Evidenced-Based Guidelines on the Treatment of Fibromyalgia Patients: Are They Consistent and If Not, Why Not? Have Effective Psychological Treatments Been Overlooked?**

Kati Thieme, Marc Mathys, and Dennis C. Turk

Fibromyalgia (FM) is frequently associated with fatigue, sleep disorder, other functional somatic syndromes, mental and physical disorders, as well as disability and diminished quality of life. FM patients incur high direct medical costs and consume significant indirect costs. This report compared the recommendations and methodology of four recent evidence-based guidelines for the management of FM patients. Each guideline used systematic reviews and meta-analyses as the highest level of evidence, and several of the guidelines also included individual randomized clinical trials. This article presents an overview and highlights the inconsistencies of the four guidelines. The discrepancies suggest a need to create a guideline consensus to synthesize these treatment guidelines.

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ON THE COVER

Fibromyalgia (FM) is a complex syndrome characterized by chronic widespread pain, hyperalgesia, and other disabling symptoms. While the brain response to experimental pain in FM patients has been the object of intense investigation, the biological underpinnings of painful after-sensations (PAS) and their relation to negative affect have received little attention. In this cross-sectional cohort study, subjects with FM and healthy controls were assessed for PAS. Results based on brain activity show that PAS are more common and severe in FM, and are associated with clinical pain and catastrophizing. See Schreiber et al, page 855.

Critical Review

757

The Potential Role of Sensory Testing, Skin Biopsy, and Functional Brain Imaging as Biomarkers in Chronic Pain Clinical Trials: IMMPACT Considerations

Shannon M. Smith, Robert H. Dworkin, Dennis C. Turk, Ralf Baron, Michael Polydefkis, Irene Tracey, David Borsook, Robert R. Edwards, Richard E. Harris, Tor D. Wager, Lars Arendt-Nielsen, Laurie B. Burke, Daniel B. Carr, Amy Chappell, John T. Farrar, Roy Freeman, Ian Gilron, Veeraindar Goli, Juergen Haeussler, Troels Jensen, Nathaniel P. Katz, Jeffrey Kent, Ernest A. Kopecky, David A. Lee, William Maixner, John D. Markman, Justin C. McArthur, Michael P. McDermott, Lav Parvathenani, Srinivasa N. Raja, Bob A. Rappaport, Andrew S. C. Rice, Michael C. Rowbotham, Jeffrey K. Tobias, Ajay D. Wasan, and James Witter

Methods to diagnose disease and predict and evaluate response to treatment are essential components of the process of developing new therapies. Valid and reliable biomarkers can play an important role in clinical trials as indicators of biological or pathogenic processes or as a signal of treatment response. Currently, there are no biomarkers for pain qualified by the US Food and Drug Administration or the European Medicines Agency for use in clinical trials. This article summarizes an Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials (IMMPACT) meeting in which three potential biomarkers were discussed for use in the development of analgesic treatments: (1) sensory testing, (2), skin punch biopsy, and (3) brain imaging.

Original Reports

778

Long-Term Pain and Recovery After Major Pediatric Surgery: A Qualitative Study With Teens, Parents, and Perioperative Care Providers

Jennifer A. Rabbitts, Rachel V. Aaron, Emma Fisher, Emily A. Lang, Caroline Bridgwater, Gabrielle Ghafari Tai, and Tonya M. Palermo

Research developing targeted treatment that is focused on coping with children's long-term pain after surgery is needed due to the high prevalence of chronic pain after surgery. This study aimed to understand the child's and family's experiences of pain over the course of their surgical experience, and to gather stakeholder input regarding barriers and facilitators of perioperative intervention delivery. Findings indicate that families experienced surgery as stressful, and felt under-prepared for pain and recovery. Families and healthcare providers expressed interest in a preoperative intervention that teaches coping skills.

787

Feelings of Clinician-Patient Similarity and Trust Influence Pain: Evidence From Simulated Clinical Interactions

Elizabeth A. Reynolds Losin, Steven R. Anderson, and Tor D. Wager

Pain is influenced by many factors other than external sources of tissue damage. Among these, the clinician-patient relationship is particularly important for pain diagnosis and treatment. However, the effects of the clinician-patient relationship on pain remain underexamined. The authors tested the hypothesis that patients who believe they share core beliefs and values with their clinician will report less pain than patients who do not. Results confirm that patients in simulated interactions who reported feeling more similarity and trust toward their clinicians reported less pain, suggesting that increasing feelings of clinician-patient similarity and trust may reduce pain disparities.

800

Pain Catastrophizing and Negative Mood States After Spinal Cord Injury: Transitioning From Inpatient Rehabilitation Into the Community

Ashley Craig, Rebecca Guest, Yvonne Tran, Kathryn Nicholson Perry, and James Middleton

Chronic pain is prevalent in people with spinal cord injury (SCI). This research investigated how chronic pain intensity and catastrophizing varies in adults with SCI during inpatient rehabilitation, up to 12 months post-injury after transitioning into the community. This work studied pain catastrophizing and negative mood states in adults with spinal cord injury (SCI). Catastrophizing was higher in those with depression, but only after discharge from hospital into the community. Results provide direction for improving treatment of pain catastrophizing in adults with SCI who are depressive and anxious.

811

Psychometric Evaluation of the Pain Attitudes Questionnaire-Revised for People With Advanced Cancer

Kenneth Mah, Kim T. Tran, Lynn R. Gauthier, Gary Rodin, Camilla Zimmermann, David Warr, S. Lawrence Librach, Malcolm Moore, Frances A. Shepherd, and Lucia Gagliese

Pain-related stoicism and cautiousness are theorized to be more prevalent in older patients and to lead to greater pain underreporting and, consequently, inadequate pain management in older patients. The Pain Attitudes Questionnaire-Revised (PAQ-R) can help test this hypothesis in advanced cancer but requires validation. The authors conducted a psychometric evaluation of the PAQ-R in 155 younger and 114 older patients with advanced cancer. Whereas older patients showed greater fortitude and superiority with lower average pain intensity, younger patients showed greater concealment or fortitude with greater worst and average pain intensity. Also, older patients displayed greater superiority with lower interference in relations with others, while younger patients displayed greater concealment and superiority with greater interference in walking ability, and greater concealment and self-doubt with more interference in relations with others.

825 **Effects of Short-Term Oxycodone Maintenance on Experimental Pain Responses in Physically Dependent Opioid Abusers**

Marion A. Coe, Paul A. Nuzzo, Michelle R. Lofwall, and Sharon L. Walsh

A common clinical problem with opioid analgesics is the loss of analgesic efficacy after repeated dosing. When this occurs, it is not clear what principles should guide providing effective analgesia among opioid-dependent individuals. This within-subject inpatient study aimed to determine if physically dependent opioid abusers experience changes in oxycodone-induced analgesia during two oxycodone maintenance phases. Results show that oxycodone produced euphoric effects and miosis with limited evidence of analgesia. More than twice the acute oxycodone maintenance dose is needed to produce robust acute analgesia, findings show though adverse effects (e.g. respiratory depression and abuse signals) may occur with lower doses.

835 **Lower Placebo Responses After Long-Term Exposure to Fibromyalgia Pain**

Eva Kosek, Annelie Rosen, Serena Carville, Ernest Choy, Richard H. Gracely, Hanke Marcus, Frank Petzke, Martin Ingvar, and Karin B. Jensen

Knowledge about placebo mechanisms in patients with chronic pain is scarce. Fibromyalgia syndrome (FM) is associated with dysfunctions of central pain inhibition, and since placebo analgesia entails activation of endogenous pain inhibition, the authors hypothesized that long-term exposure to FM pain would negatively affect placebo responses. The authors demonstrate that FM duration influences endogenous pain regulation, as pain levels and placebo-induced analgesia were negatively affected. These results highlight the importance of early FM interventions, as endogenous pain regulation may still be harnessed at that early time. Also, placebo-controlled trials should take FM duration into consideration when interpreting results.

844 **Sleep Fragmentation Hypersensitizes Healthy Young Women to Deep and Superficial Experimental Pain**

Stella Iacovides, Kezia George, Peter Kamerman, and Fiona C. Baker

The effect of sleep deprivation on pain sensitivity has typically been studied using total and partial sleep deprivation protocols. These protocols do not mimic the fragmented pattern of sleep disruption usually observed in individuals with clinical pain conditions. This work investigated the effect of sleep fragmentation on pain perception in 11 healthy young women following two consecutive nights of sleep fragmentation, compared with a normal night of sleep. The findings indicate that pain-free, young women develop hyperalgesia to superficial and deep muscle pain after short-term sleep disruption, and highlight the need for effective sleep management strategies in pain patients. Findings also suggest the possibility that short-term sleep disruption associated with recurrent acute pain could contribute to increased risk for future chronic pain conditions.

855

Painful After-Sensations in Fibromyalgia are Linked to Catastrophizing and Differences in Brain Response in the Medial Temporal Lobe

Kristin L. Schreiber, Marco L. Loggia, Jieun Kim,
Christine M. Cahalan, Vitaly Napadow, and Robert R. Edwards

Fibromyalgia (FM) is a complex syndrome characterized by chronic widespread pain, hyperalgesia, and other disabling symptoms. While the brain response to experimental pain in FM patients has been the object of intense investigation, the biological underpinnings of painful after-sensations (PAS) and their relation to negative affect have received little attention. In this cross-sectional cohort study, subjects with FM and healthy controls were assessed for PAS. Results show that PAS are more common and severe in FM, and are associated with clinical pain and catastrophizing. PAS severity is also associated with deactivation of the medial temporal lobe, a core node of the default mode network, which may be important in the prolongation of pain sensation in FM.

868

Cost-Utility of Group Acceptance and Commitment Therapy for Fibromyalgia Versus Recommended Drugs: An Economic Analysis Alongside a 6-Month Randomized Controlled Trial Conducted in Spain (EFFIGACT Study)

Juan V. Luciano, Francesco D'Amico, Albert Feliu-Soler,
Lance M. McCracken, Jaume Aguado,
María T. Peñarrubia-María, Martin Knapp,
Antoni Serrano-Blanco, and Javier García-Campayo

This study sought to analyze the cost-utility of a group-based form of Acceptance and Commitment Therapy (GACT) in patients with fibromyalgia, compared with patients receiving recommended pharmacological treatment or patients on a waiting list. GACT includes a wide variety of methods that foster psychological flexibility, generally including exposure-based techniques, metaphors, mindfulness, and more conventional behavioral activation or skills training. From both government and healthcare perspectives, this study shows that a group-based form of Acceptance and Commitment Therapy is more cost-effective than pharmacological treatment in management of fibromyalgia.

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