

The Journal of Pain

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Volume 20, Number 10, October 2019


REVIEW ARTICLES

1127 The Role of Perceived Stress and Life Stressors in the Development of Chronic Musculoskeletal Pain Disorders: A Systematic Review

Valentina Buscemi, Wei-Ju Chang, Matthew B. Liston, James H. McAuley, and Siobhan M. Schabrun

The aetiological role of work-related psychological stress in the development of musculoskeletal pain disorders (MDs) has been systematically investigated. Less clear is the role of perceived stress and life stressors. This review article aimed to assess the evidence for the role of perceived stress and life stressors in the development of chronic MDs. The limited number of studies, and the poor quality of the evidence and heterogeneity of stress measures used across studies suggest that further high-quality prospective studies are required to clarify the role of perceived stress and life stressors in the development of chronic MDs.

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ON THE COVER

It has been recommended that the morphine milligram equivalent dose in patients receiving opioid therapy be lowered in order to reduce opioid-related overdose and death. There are limited pharmacologic options for patients seeking an alternative to schedule II opioids who still require effective analgesia. A critical challenge therefore exists to identify safer analgesic options that reduce the risk of treatment-related death. The authors indicate that this is the first study of desmetramadol in humans and the first to show it provides the same safety and analgesia as tramadol, but without tramadol's metabolic liabilities and related drug-drug interactions. Desmetramadol could potentially offer expanded safety and utility to clinicians seeking an alternative to schedule II opioids. See Zebala, et al, Page 1218.

1140

Pain Neuroscience Education for Adults With Chronic Musculoskeletal Pain: A Mixed-Methods Systematic Review and Meta-Analysis 

James A. Watson, Cormac G. Ryan, Lesley Cooper, Dominic Ellington, Robbie Whittle, Michael Lavender, John Dixon, Greg Atkinson, Kay Cooper, and Denis J. Martin

Interventions which encourage and empower patients to self-manage are recommended for individuals with chronic musculoskeletal pain (CMP). Education is a cornerstone of this approach with the premise that the better an individual understands their condition, the more empowered they become and the better they will be able to manage it. Pain neuroscience education (PNE) is an intervention used in the management of CMP aiming to reconceptualize an individual's understanding of their pain as less threatening. This review undertook a segregated synthesis of quantitative and qualitative studies to investigate the effectiveness and patients' experience of PNE for people with CMP. Key components that can enhance the patient experience of PNE, such as allowing the patient to tell their own story, are also presented. These components may enhance pain reconceptualization.

FOCUS ARTICLES

1141

How an Understanding of Our Ability to Adhere to Verbal Rules Can Increase Insight Into (Mal)adaptive Functioning in Chronic Pain

Melanie Beeckman, Sean Hughes, Ama Kissi, Laura E. Simons, and Liesbet Goubert

Research on chronic pain has traditionally focused on how direct pain experiences lead to maladaptive thoughts, feelings, and actions which set the stage for, and maintain, pain-related disability. Yet the capacity for language (and more specifically verbal instructions or rules) to put people into indirect contact with pain has never been systematically investigated. This work introduces a novel theoretical perspective on verbal processes and discusses how the study of verbal rules may increase our understanding of both maladaptive and adaptive functioning in chronic pain. Future research directions are outlined and suggestions for improving clinical practice are considered.

ORIGINAL REPORTS

1155

Painful Temporomandibular Disorder Is Associated With Migraine in Adolescents: A Case-Control Study

Giovana Fernandes, Marco Antônio Arruda, Marcelo Eduardo Bigal, Cinara Maria Camparis, and Daniela A.G. Gonçalves

Some types of primary headaches and temporomandibular disorders (TMDs) are comorbid in adults and highly prevalent in adolescents. The authors investigated the association of painful TMD with specific headache diagnoses (migraine, tension-type headache) and with headache frequency in adolescents, and explored the association of headache diagnosis with the number of painful sites in the trigeminal area. Migraine and headache frequency were found to be strongly

associated with painful TMD in adolescents, and causality must be determined. The presence of one condition should raise suspicion of the other, and warrants collaboration between orofacial pain specialists and neurologists.

1164 Measuring Stigma in Chronic Pain: Preliminary Investigation of Instrument Psychometrics, Correlates, and Magnitude of Change in a Prospective Cohort Attending Interdisciplinary Treatment

Whitney Scott, Lin Yu, Shrina Patel, and Lance M. McCracken

Chronic pain is a potentially stigmatizing condition, but stigma has received limited investigation among this population. This research examined the psychometric properties of a self-report questionnaire of stigma. Researchers also examined the magnitude of change in stigma associated with interdisciplinary treatment. Participants attending interdisciplinary treatment based on acceptance and commitment therapy completed the Stigma Scale for Chronic Illness 8-item version (SSCI-8) and measures of perceived injustice, pain acceptance, and standard pain outcomes before and after treatment. Results support the use of the SSCI-8 to measure stigma in chronic pain. Stigma is associated with worse depression and pain-related disability. Research is needed to identify how to best target pain-related stigma from individual and societal perspectives.

1176 Spouse and Patient Beliefs and Perceptions About Chronic Pain: Effects on Couple Interactions and Patient Pain Behavior

John W. Burns, Kristina M. Post, David A. Smith, Laura S. Porter, Asokumar Buvanendran, Anne Marie Fras, and Francis J. Keefe

Patients' beliefs and perceptions about the causes and meaning of their chronic pain are related to their psychosocial functioning. Beliefs and perceptions held by spouses may also be related to patient functioning. Spouse perceptions that patient pain was a mystery were significantly related to greater patient perceived spouse critical/invalidating responses, and were related to internal and negative attributions spouses made while observing patients display pain behaviors. In summary, spouse uncertainty about the source and potential legitimacy of their partner's pain may play a crucial role in affecting patient well-being.

1187 Oxytocin Effects on Pain Perception and Pain Anticipation

Sabine C. Herpertz, Mike M. Schmitgen, Christine Fuchs, Corinna Roth, Robert Christian Wolf, Katja Bertsch, Herta Flor, Valery Grinevich, and Sabrina Boll

There is an ongoing debate whether the neuropeptide oxytocin (OT) modulates pain processing in humans. This study differentiates behavioral and neuronal OT effects on pain perception and pain anticipation by using a Pavlovian conditioning paradigm. Forty-six males received intranasally administered OT in a randomized, placebo-controlled group design. Although OT exerted no direct effect on perceived pain, OT was found to modulate the blood oxygen level-dependent response in the ventral striatum for painful versus warm unconditioned stimuli, and to decrease activity in the anterior insula with repeated thermal pain stimuli. This may inspire further research on OT effects on the affective dimension of the pain experience

1199

Evaluation of Postsurgical Hyperalgesia and Sensitization After Open Inguinal Hernia Repair: A Useful Model for Neuropathic Pain?

Daniel W. Wheeler, Anuj Bhatia, Vaithianadan Mani, Sara Kinna, Andrew Bell, Yvonne Boyle, Boris A. Chizh, David K. Menon, and Michael C. Lee

Cutaneous mechanical hyperalgesia can be induced in healthy volunteers in early phase analgesic studies to model central sensitization, a key mechanism of persistent pain. However, such hyperalgesia is short-lived, and is used only for assessing only single drug doses. This research undertook quantitative sensory testing in patients at peri-incisional and nonoperative sites, before open inguinal hernia repair and up to 24 weeks post surgery. This suggests that central sensitization contributes to mechanical hyperalgesia at the peri-incisional site. This may have usefulness as a model of chronic pain to assess the potential of antineuropathic analgesics.

1209

Adverse Childhood Experiences in Mothers With Chronic Pain and Intergenerational Impact on Children

Catlin H. Dennis, Denae S. Clohessy, Amanda L. Stone, Beth D. Darnall, and Anna C. Wilson

Adverse childhood experiences (ACEs), such as parental divorce or sexual abuse, are more prevalent in individuals with chronic pain, compared with the general population. Both increased maternal ACEs and chronic pain have been associated with poor physical and emotional functioning in offspring. This study evaluated the relation between maternal ACEs, mothers' current functioning, and children's physical and emotional functioning. Higher maternal ACE scores correlated with higher child self-reported depressive symptoms, but not somatic symptoms or functional impairment. This provides evidence regarding targets for preventive intervention.

1218

Desmetramadol Has the Safety and Analgesic Profile of Tramadol Without Its Metabolic Liabilities: Consecutive Randomized, Double-Blind, Placebo- and Active Comparator-Controlled Trials

John A. Zebala, Shawn L. Searle, Lynn R. Webster, Matt S. Johnson, Aaron D. Schuler, Dean Y. Maeda, and Stuart J. Kahn

It has been recommended that the morphine milligram equivalent dose in patients receiving opioid therapy be lowered in order to reduce opioid-related overdose and death. There are limited pharmacologic options for patients seeking an alternative to schedule II opioids who still require effective analgesia. A critical challenge exists to identify safer analgesic options that reduce the risk of treatment-related death. The authors indicate that this is the first study of desmetramadol in humans and the first to show it provides the same safety and analgesia as tramadol, but without tramadol's metabolic liabilities and related drug-drug interactions. Desmetramadol could potentially offer expanded safety and utility to clinicians seeking an alternative to schedule II opioids.

1236 Heterogeneity of Treatment Effects in a Randomized Trial of Literacy-Adapted Group Cognitive-Behavioral Therapy, Pain Psychoeducation, and Usual Medical Care for Multiply Disadvantaged Patients With Chronic Pain

Benjamin P. Van Dyke, Andrea K. Newman, Calia A. Morais,
John W. Burns, Joshua C. Eyer, and Beverly E. Thorn

Differences among patients can moderate the impact of evidence-based treatments, leading patients to receive more or less benefit. The Learning About My Pain study was a trial of group cognitive behavior therapy for chronic pain versus pain psychoeducation groups. Sociodemographic and cognitive moderators of treatment effect were examined. Findings show that educationally, cognitively, or literacy disadvantaged patients benefit most from cognitive-behavior therapy, rather than psychoeducation, whereas less disadvantaged patients benefit from either treatment.

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