

The Journal of Pain

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Critical Review

125 Unravelling Fibromyalgia—Steps Toward Individualized Management

Winfried Häuser, Serge Perrot, Daniel J. Clauw, and Mary-Ann Fitzcharles

This article presents suggestions for an individualized treatment strategy for fibromyalgia (FM) patients based on subgroups and disease severity. Categorizing FM as mild, moderate or severe can be based on clinical assessment or on questionnaires. Subgroups can be defined by mental health and somatic comorbidities. When indicated, the authors suggest that treatments should follow a stepwise approach beginning with easily available therapies such as aerobic exercise and amitriptyline. Successful application of a tailored treatment approach that is informed by individual patient characteristics should improve the outcome of FM.

Original Reports

135 Pain Affects Visual Orientation: an Eye-Tracking Study

Katharina Schmidt, Matthias Gamer, Katarina Forkmann, and Ulrike Bingel

Due to its unique evolutionary relevance, it is understood that pain automatically attracts attention. This study investigated attentional shifts by assessing eye movements into the direction of painful stimulation. Healthy participants were presented either a blank screen or a picture showing a natural scene while painful electrical stimuli were applied to the left or right hand. In general, painful stimulation reduced exploratory behavior as reflected by less and slower saccades as well as fewer and longer fixations. These findings are in line with previous observations of attentional biases towards pain-related information and highlight eye-tracking as a valuable tool to assess involuntary attentional consequences of pain.

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ON THE COVER

Due to its unique evolutionary relevance, it is understood that pain automatically attracts attention. This study investigated attentional shifts by assessing eye movements into the direction of painful stimulation. Healthy participants were presented either a blank screen or a picture showing a natural scene while painful electrical stimuli were applied to the left or right hand. In general, painful stimulation reduced exploratory behavior as reflected by less and slower saccades as well as fewer and longer fixations. These findings are in line with previous observations of attentional biases towards pain-related information and highlight eye-tracking as a valuable tool to assess involuntary attentional consequences of pain. See Schmidt et al, page 135.

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Structural and Functional Brain Changes at Early and Late Stages of Complex Regional Pain Syndrome

Mahsa Shokouhi, Collin Clarke, Patricia Morley-Forster, Dwight E. Moulin, Karen D. Davis, and Keith St. Lawrence

Complex Regional Pain syndrome (CRPS) is a debilitating chronic pain condition characterized by sensory, motor, trophic, vasomotor and sudomotor symptoms in the affected limb, usually after traumatic injury or surgery. It is characterized by pain that is disproportionate to the initial trauma, and continues beyond the expected recovery period. In this study, the authors measured structural and functional brain changes as well as sensorimotor integration at early and late stages of CRPS. This article presents details on brain changes in early and late states of complex regional pain syndrome. The observation that symptoms can progress over time suggests that the pattern of brain changes might also evolve.

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A Cost-Analysis of an Interdisciplinary Pediatric Chronic Pain Clinic

Nicole E. Mahrer, Jeffrey I. Gold, Michael Luu, and Patricia M. Herman

Chronic pain is characterized by high rates of functional impairment, healthcare utilization, and associated costs. Research supports the use of comprehensive, interdisciplinary treatment approaches. However, many hospitals hesitate to offer this full range of services, especially to patients whose services are reimbursed at low rates. This cost analysis examines the impact on hospital and insurance costs of patients' enrollment in an interdisciplinary pediatric pain clinic, which includes medication management, psychotherapy, biofeedback, acupuncture, and massage. Findings support the incorporation of a comprehensive treatment approach that can reduce costs from a hospital and insurance perspective over the course of just one year.

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Association of Prescription Drug Monitoring Program Use With Opioid Prescribing and Health Outcomes: A Comparison of Program Users and Nonusers

Richard A. Deyo, Sara E. Hallvik, Christi Hildebran, Miguel Marino, Rachel Springer, Jessica M. Irvine, Nicole O'Kane, Joshua Van Otterloo, Dagan A. Wright, Gillian Leichtling, Lisa M. Millet, Jody Carson, Wayne Wakeland, and Dennis McCarty

Prescription drug monitoring programs (PDMPs) are a response to the prescription opioid epidemic, but their impacts on prescribing and health outcomes remain unclear, with conflicting reports. The authors sought to determine if prescriber use of Oregon's prescription drug monitoring program led to fewer high-risk opioid prescriptions or overdose events. Results show that although opioid prescribing declined statewide after implementing the PDMP, registrants did not demonstrate greater declines than non-registrants. Factors other than PDMP use may have had greater influence on prescribing trends. Refinements in the PDMP program and related policies may be necessary to increase impact, the authors conclude.

178 Sex-Specific Effects of Gender Identification on Pain Study Recruitment

Larissa Mattos Feijó, Guliz Zeynep Tarman, Charlotte Fontaine, Richard Harrison, Tom Johnstone, and Tim Salomons

Epidemiological, clinical and laboratory studies show sex differences in pain responses, with women more sensitive to nociceptive stimulation and more vulnerable to long-term pain conditions than men. Given evidence that males are culturally reinforced for the ability to endure pain, some findings might be explained by socio-cultural beliefs about gender-appropriate behavior. One manifestation of these effects might be differential participation in pain studies, with males adhering to stereotypical roles viewing participation as a vehicle to demonstrate masculinity. Subjects were asked about participation interest in research involving administration of pain-evoking stimulation; interested subjects were compared with those who declined. Among masculine gender traits examined, researchers found that high levels of aggression and competitiveness were the strongest predictors of pain study participation. This suggests that male samples in pain studies might have higher levels of masculine gender identification than the wider male population.

186 IL-18 Contributes to Bone Cancer Pain by Regulating Glia Cells and Neuron Interaction

Su Liu, Yue-peng Liu, You Lv, Jun-Li Yao, Dong-mei Yue, Mao-yin Zhang, Dun-yi Qi, and Gong-jian Liu

Bone cancer pain is one of the most common symptoms presented by patients with primary and metastatic bone cancer. Glia cells hyperactivity has been proposed to be responsible for chronic pain, but the mechanisms remain unclear. IL-18, released from glial cells, has been reported to be involved in neuropathic pain. The authors investigated the role of IL-18 in bone cancer pain. Bone cancer pain was mimicked by injecting Walker-256 mammary gland carcinoma cells into the intramedullary space of the tibia in rats. Investigators report that IL-18-mediated glial-glia and glia-neuron interaction may facilitate bone cancer pain. IL-18 signaling may effectively prevent and/or suppress bone cancer pain, and may be a new target for cancer pain therapy.

196 Unravelling the Relationship Between Parent and Child PTSD and Pediatric Chronic Pain: the Mediating Role of Pain Catastrophizing

Alexandra Neville, Sabine Soltani, Maria Pavlova, and Melanie Noel

Clinically elevated rates of posttraumatic stress disorder (PTSD) symptoms are found among many youths with chronic pain and their parents, and are linked to worse child pain outcomes. Conceptual models of mutual maintenance in pediatric PTSD and chronic pain posit that child and parent pain catastrophizing are key mechanisms underlying this co-occurrence. This work studied child / parent pain catastrophizing as potential mediators in the child PTSD-child pain and parent PTSD-child pain relationships, among a cohort of youth with chronic pain. The findings suggest that children's catastrophic thinking about pain may explain how PTSD symptoms influence children's experience of chronic pain, and is a potential target in family-based interventions to improve pain and mental health outcomes.

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Children With Chronic Pain: Response Trajectories After Intensive Pain Rehabilitation Treatment

Laura E. Simons, Christine B. Sieberg, Caitlin Conroy, Edin T. Randall, Julie Shulman, David Borsook, Charles Berde, Navil F. Sethna, and Deirdre E. Logan

Intensive pain rehabilitation programs for children with chronic pain are effective for many patients. However, characteristics associated with treatment response have not been well documented. This report provides trajectories of pain and functional impairment in patients with chronic pain up to one year after intensive pain rehabilitation, and examines factors associated with treatment response. Patients with chronic pain and functional disability were assessed at five time points, and individual trajectories were empirically grouped. The findings provide information on the baseline factors that influence intensive pain rehabilitation outcomes, including risk factors that predict treatment nonresponse. Deriving groups of individuals with differing treatment response trajectories stimulates new thinking regarding potential mechanisms that may drive outcomes. The results may have implications for developing more targeted treatment interventions.

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Attentional Modulation of Somatosensory Processing During the Anticipation of Movements Accompanying Pain: An Event-Related Potential Study

Amanda Clauwaert, Diana M. Torta, Lieven Danneels, and Stefaan Van Damme

Attending to pain-relevant information is crucial to protect humans from physical harm. Behavioral studies have already suggested that during anticipation of pain, somatosensory input at the body location under threat is prioritized. However, research using daily life cues for pain, especially movements, is lacking. This research investigated whether movements accompanying pain automatically steer attention towards somatosensory input at the threatened location, affecting somatosensory evoked potentials. Results show that the anticipation of pain-accompanying movements may affect the processing of somatosensory input, and that this is likely to be driven by attentional processes. This work provides new insight into the interplay between pain and attention and into its consequences at the cortical level.

Letter to the Editor

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Problems in Meta-Analysis of Comparative Effectiveness of Conservative Interventions for Nonspecific Chronic Spinal Pain

David C. Hoaglin

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Criticism for Following Recommended Practice

Mary O’Keeffe and Kieran O’Sullivan

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