JOURNAL WATCH

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Our expert highlights the most important research articles across the spectrum of topics relevant to the field of pain management

Expert: John D Loeser, University of Washington, WA, USA

Upp J, Kent M, Tighe PJ. The evolution and practice of acute pain medicine. *Pain Med.* 14, 124–144 (2013).

This is a superb treatise on the history, growth and development of acute pain medicine (APM). It lays out the reasons for such a service, and indeed, a potential specialty. Clearly a subdivision of anesthesiology, the movement to articulate APM as a specialty helps to clarify the differences between the management of acute and chronic pain, and the type of training and experience that each area requires. The authors have thoroughly described the role that APM can play in modern healthcare and have provided an example of what every hospital should aspire to for patient safety and comfort. The authors discuss the education and training of acute pain physicians and the support personnel that are required to run an effective service. The use of protocols to determine patient management is emphasized. A brief section on cost-effectiveness lays out the issues for APM. In the oncoming era of the Accountable Care Organization in the USA, justifying the costs of one's service is critical. I believe that the authors have staked out a valid claim for the development of a new subspecialty of anesthesiology while making it quite clear that chronic pain management belongs in a different medical domain, even though they do not really address the issues for chronic pain at all.

MJ Bair, EL Poleshuck, J Wu et al. Anxiety but not social stressors

predict 12-month depression and pain severity. *Clin. J. Pain* 29, 95–101 (2013).

The authors set out to determine if anxiety and social stressors predicted 12-month outcomes in a multidisciplinary primary care intervention. They also looked at whether early changes (within the first 3 months) predicted 12-month outcomes. The 250 subjects for this study were musculoskeletal pain patients involved in a randomized clinical trial of a combined medication and behavioral intervention versus care as normal. A prior study had demonstrated that patients randomized to the intervention arm manifested moderate relief of pain and significantly decreased depression. This study looked for predictive variables at baseline. Anxiety was assessed using the Generalized Anxiety Disorder-7 scale, social stress was measured with Patient Health Questionnaire-9. The Symptom Checklist-20 and Brief Pain Inventory were used to assess depression and pain levels. Anxiety severity at baseline, as well as early improvement in anxiety, were independent predictors of both depression and pain severity at 12 months. Social stressors at baseline or their reduction by 3 months did not predict depression or pain severity at 12 months. This study emphasizes the importance of addressing comorbid anxiety in the successful treatment of chronic pain patients. There is always more than occult pathology that the pain physician must address.

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Pitcher MA, Nieto FR, Cervero F. Stimulation of cutaneous low threshold mechanoreceptors in mice after intracolonic capsaicin increases spinal c-Fos labeling in an NKCC1-dependent fashion. *J. Pain* 14, 57–65 (2013).

This rodent study addresses a proposed mechanism for allodynia and comes to the fascinating conclusion that $\text{Na}^+/\text{K}^+/\text{Cl}^-$ cotransporter 1 (NKCC1) plays an important role in the genesis of this sensory abnormality. It is well known that stimulation of peripheral nociceptors leads to increased c-Fos labeling in spinal cord regions that are involved in nociceptive information processing. By contrast, light stimulation of abdominal

skin does not result in c-Fos labeling or pain behavior. However, if the mouse is given intracolonic capsaicin, lightly stroking the abdominal skin leads to pain behavior and increased c-Fos labeling in the spinal cord nociceptive regions. Previous work by these authors has shown that the afferent activity in low-threshold sensory fibers activates nociceptive sensory fibers via NKCC1 enhanced primary afferent depolarization. In this study, the NKCC1 blocking agent bumetanide was administered intrathecally and markedly reduced both the allodynia and the c-Fos expression after intracolonic capsaicin. It has been suggested that NKCC1 is the principal determinant of intracellular chloride in dorsal root ganglion neurons, and upregulation of this agent could result in

exaggerated primary afferent depolarization sufficient to produce depolarization of nociceptor terminals – that is, presynaptic inhibition becomes presynaptic excitation. The search for mechanisms of chronic pain states is illuminated by this study.

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