

Pain Relief Connection

The Pain Information Newsletter

Provided by MGH Cares About Pain Relief
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Clinical Focus: Pharmacologic Interventions for Pain.

NOTE: This series is intended to provide general information and context about medications for the treatment of pain. Clinical experience and judgement, individualization of treatment, and consultation with experts and standard references should guide the treatment of specific patients.

WORLD HEALTH ORGANIZATION ANALGESIC LADDER: STEP 1--NONOPIOID ANALGESICS--NSAIDS, PART 3

This month we resume our series that previously discussed acetaminophen, pathophysiology of abdominal pain, principles of NSAID therapy, and "traditional" over-the-counter NSAIDs--*Pain Relief Connection* [Vol 1 No. 11](#); [Vol 1 No. 12](#); [Vol 2 No. 1](#).

THE NEW GENERATION OF NSAIDS: COX-2 INHIBITORS

The first cyclo-oxygenase-2 inhibitor, celecoxib (Celebrex), initiated a mini-revolution in the treatment of inflammatory pain (especially arthritis) after its approval in 1998. The COX-2s were expected to be much safer than traditional ("non-selective") NSAIDs. Non-selective NSAIDs also inhibit COX-1, which promotes both platelet clumping and mucosal protection of the gastrointestinal (GI) tract. Non-selective NSAIDs are therefore associated with GI distress and ulceration, and bleeding. This toxicity is more prevalent in the elderly and those with a history of GI ulceration and/or renal insufficiency. In clinical trials celecoxib has been shown to have equivalent efficacy in pain reduction, and to be associated with significantly less gastrointestinal toxicity. Celecoxib has since been joined by two other COX-2 inhibitors, rofecoxib (Vioxx), and valdecoxib (Bextra).

ADVANTAGES AND DISADVANTAGES

- There are significantly fewer patients who develop GI ulceration and/or bleeding with COX-2's compared to non-selective NSAIDs.
- All 3 COX-2s may be taken on a once-a-day schedule, a significant advantage for some patients.
- Based on direct-comparison studies, all NSAIDs have approximately equal efficacy, although clinical experience has shown significant inter-patient variability. A few postoperative clinical trials have shown that COX-2s compare favorably for pain relief with hydrocodone/acetaminophen or oxycodone/acetaminophen combinations.
- All of the COX-2s remain under patent protection and are very expensive in comparison to both over-the-counter and most prescription non-selective NSAIDs. The drug cost must be weighed against the risks associated with non-selective NSAIDs.
- COX-2s are not a substitute for low-dose aspirin in patients who are taking aspirin for its antithrombotic effect.
- COX-2s are not a substitute analgesic for patients with aspirin allergy.
- The long-term effects of both standard and high doses of COX-2s is unclear. Although GI ulceration, specifically, is reduced (not eliminated), other serious adverse events, including cardiovascular thromboembolic events and death, have been associated with COX-2s.

When choosing an NSAID to recommend the prescriber must carefully weigh the various risk factors associated with age, renal function, previous GI history, and cardiovascular health.

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In the News

[Boston EMS](#) is currently recruiting. There is a class beginning in August that will qualify participants for the state certification examination. Registration information is available via the Boston EMS web site, or by calling Donna Shepard at Boston EMS Research, Training, & Quality Improvement at (617) 343-1125.

Journal Watch

Speaking of EMS, the June 2003 issue of *Journal of Emergency Medical Services* (locally available through Northeastern University Library) has an editorial and 3 very good articles on pain management. Single copies of the articles are available through MGH Cares About Pain Relief.

Important articles on pediatric pain have appeared recently in non-pediatric journals (all are available via MAGIC).

- An [editorial](#) in *BMJ* [2003 Jun 28;326(7404):1408-9] refers to the assumption that chronic pain is a uniquely adult problem as a “prejudice.” It also points out that, while it is important to look for a serious underlying disease, during this “‘diagnostic vacuum,’ the child often receives little appropriate pain management” (see the Pain Topics article in this issue on the long-term sequelae to unrelieved pain).
- The May issue of *Annals of Emergency Medicine* [2003;41(5):617-622] described a [study](#) of children with long bone fractures and burns in the ED. Young children (6 – 24 months) received analgesics only a third of the time, while school age children received them about half the time. In those patients who received an analgesic, less than 17% in the younger group received opioid analgesics, compared to 44% in the older group. There were no untoward events among those analgesics in either age group. The authors conclude “pediatric patients presenting to the ED continue to be undertreated with analgesics agents for serious injuries.” They speculate that the disparity between younger and older groups may be related both to misconceptions about pain and analgesics in the younger child, and to the lack of verbal ability in the younger child. (See Pain Topics article in this issue on “Assessing Pain in the Difficult-to-Assess Patient.”)
- A nationwide [study](#) in the July issue of *Annals of Emergency Medicine* [2003;42(1):41-47] is a little more hopeful. Somewhat higher percentages of children received non-opioid and opioid analgesics. There was no disparity among racial groups, in contrast to two previous (but not nationwide) studies in adults. Interestingly, patients in the South and West were more likely to receive analgesics in the ED than patients in the Northeast and Midwest.

An [article](#) in the *Proceedings of the National Academy of Sciences* [2003;100(14):8538-8542] (available via MAGIC on MGH computers) provides a central nervous system rationale for the clinical observation that there is wide variation in pain perception among individuals. In an experiment with volunteers a heating pad on the leg was raised to 120°F. The range of pain scores the volunteers assigned to their discomfort ranged from 1 to 9 on a scale of 0 – 10. Those who reported more pain had greater activity in the primary somatosensory cortex and the anterior cingulate cortex, areas known to be involved in the perception and processing of pain. The lead author, Robert Coghill of Wake Forest University, has fascinating images of the brain on his web site, “[Brain Mechanisms of Pain](#).”

Pain Management “Hot Buttons”

Reports from around the country strongly suggest that pain management will be a “hot button” issue during the JCAHO survey (Sept 15-19!). The issues are generally straightforward:

- Is pain assessed in all patients? (If it’s not documented, it didn’t happen! On the inpatient side, they’ll look at the pain scores on the flow sheet, and the pain description in the progress note)
- If pain is present is there an intervention or plan? (Progress note)
- What was the patient response to the intervention? (Progress note and pain scores on flow sheet)
- Was the patient/family educated about pain management? (Interdisciplinary patient/family teaching record)
- Is there a plan in place for pain management when the patient is discharged? (Discharge documentation forms)

MGH Pain Calendar

“**Conversations about Cancer pain**” (for patients and families) with Annabel Edwards, sponsored by the HOPES Program. Monday July 7 at 11:00am, Cancer Resource Room. Free, no registration necessary. Call 617-724-1822 for more information.

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URL notes: **Hold your cursor over the link for a second to see the URL.** If you are reading this in hard copy, this month's links are:
WHO Analgesic Ladder: <http://www.mcmahonmed.com/wworks/CHARTS/3step/default.html>
Previous issues of *Pain Relief Connection*: <http://www.massgeneral.org/painrelief/Newsletter>
Boston EMS: <http://www.bostonems.com/rtqinews.html>
Managing Chronic Pain in Children and Adolescents: <http://bmj.com/cgi/content/full/326/7404/1408>; *BMJ*: <http://bmj.com>
Underuse of Analgesia in Young Patients:
<http://www2.us.elsevierhealth.com/scripts/om.dll/serve?action=searchDB&searchDBfor=art&artType=full&id=amem03138>
Effect of Ethnicity of Children and Analgesics:
<http://www2.us.elsevierhealth.com/scripts/om.dll/serve?action=searchDB&searchDBfor=art&artType=full&id=amem03230>
Annals of Emergency Medicine:
<http://www2.us.elsevierhealth.com/scripts/om.dll/serve?action=searchDB&searchDBfor=home&id=em>
Interindividual Differences in Pain: <http://www.pnas.org/cgi/reprint/1430684100v1.pdf>
Proceedings of the National Academy of Sciences: <http://www.pnas.org>
Brain Mechanisms of Pain: <http://www.wfubmc.edu/nba/faculty/coghill/coghill.html>
Mayday Fund: <http://www.painandhealth.org/mayday/mayday-home.html>

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PAIN TOPICS

Pain Assessment in the Difficult-to-Assess Patient

Thomas E. Quinn, MSN, RN, AOCN
Project Director, MGH Cares About Pain Relief

A systematic approach to pain assessment is critical to optimal pain management. Using common language and methods is the most effective way to facilitate collaboration, consistency and continuity, and to decrease the risk of confusion and error. Because the patient report is the most reliable indicator of pain, the vast majority of pediatric and adult patients can have the severity of their pain adequately assessed using standard instruments such as the 0-10 scale or the Wong-Baker FACES scale. However, the potential for pain should not be overlooked in patients who cannot reliably report their pain, and provision must be made for patients who are unable to use the standard tools.

Some cognitively intact adults have difficulty conceptualizing pain on a 0-10 horizontal scale. Turning the scale on its side (like a thermometer) is helpful to some of them. Some patients, especially but not exclusively elders, associate the term “pain” only with severe discomfort, so may deny pain even when they appear to be uncomfortable. It may be useful to try other terms such as “ache,” “sore,” or “discomfort.” Asking both children and adults what words they use when they hurt will help patients and caregivers adopt common terminology. This in turn can facilitate the use of a verbal descriptor scale that the nurse or physician can consistently use in place of the standard 0-10 scale.

In pediatrics, selection of appropriate assessment tools should consider developmental levels rather than simply an age-appropriate tool. For example, systematic assessment of behaviors is the primary means of pain assessment in preverbal children, but one tool may more appropriate to neonates (e.g., N-PASS) and another to small or developmentally delayed children (e.g., FLACC). Parental involvement is also usually a critical component in the pain assessment of children. It is particularly difficult to assess pain in children with severe cognitive impairments. Attempts have been made to validate instruments to assess pain in this population¹, but there is not yet consensus on a standard procedure for assessing pain in this population. Clinicians, parents, and child life specialists should collaboratively attempt individualized systematic assessment and intervention, taking into consideration the points outlined in the last section.

The adult patients who are most difficult to assess are those who are most seriously ill or injured, and those with dementia. Both groups are at high risk for unrecognized and under-treated pain. When applicable, patient self-report, even in the critical care setting, remains the “gold standard.” However, we are frequently reduced to clinical judgment, behavioral signs, and, sometimes, physiologic signs in assessing these patients. An instrument (PAINAD) has recently been validated for use in assessing pain in elders with dementia by systematically observing behaviors and scoring them in a standard manner.² (See [Pain Relief Connection](#), Vol 1 #9 Sept 2001, “Assessment of Pain in Patients with Dementia”) Research is underway to develop pain assessment instruments and processes for use in the critical care setting for cases in which the common tools are not applicable.^{3,4} Patients who are comatose, are physically or chemically immobilized, sedated, or disoriented are at risk for pain and are particularly difficult to assess. In many cases, pain can be assumed to be present.⁵ When a standardized instrument is available and applicable to a patient’s condition, it should be used. As with children, clinicians and family (as appropriate) should collaboratively attempt individualized systematic assessment and intervention, taking into consideration the points outlined in the next section.

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Critical Elements to Consider

The following points should be considered in assessing pain in patients who are not able to provide their own report:

- A condition or procedure that is likely to cause pain in a cognitively intact patient is likely to cause a similar amount of pain in a cognitively impaired, comatose, sedated, immobilized, or demented person.
- Physiologic measures are useful surrogate indicators for acute pain but not for persistent pain.
- Behavioral signs are useful surrogate indicators for acute pain and sometimes for persistent pain.
- Family members (particularly in the case of children) may be able to provide valuable insight into behaviors that may be associated with pain.
- Neuromuscular blockade may prevent behaviors that are indicative of pain, but does so without providing analgesia.
- Sedation may prevent behaviors that are indicative of pain, but usually does so without providing analgesia.
- Creativity and sensitivity to individual patient needs facilitates pain assessment and management.
- Consistent, collaborative, systematic assessment is the key to adequate pain management in all populations.

Rapid Recap

Some patients are unable to provide a self-report or may be impaired by disease or treatments. These patients are at high risk for unrecognized pain. A combination of the following approaches may be helpful:

- Consider the commonly used pain assessment instruments to see if an instrument appropriate to the patient's developmental stage and/or condition is available
- Consult with an expert colleague, such as the Clinical Nurse Specialist, to help identify pain indicators
- Use physiologic signs as surrogate markers of acute pain
- Use behavioral signs as surrogate markers of acute or chronic pain
- Use family members to assist in identifying pain behaviors
- If a condition or procedure is painful for a responsive patient, assume that it is painful for an unresponsive patient, unless there is reason to believe otherwise
- If the patient reported pain prior to becoming unresponsive, assume that the painful condition persists, unless there is reason to believe otherwise
- Document the pain indicators you use so that colleagues may share a consistent method of assessment

References:

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2. Warden V, Hurley AC, Volicer L. Development and Psychometric Evaluation of the Pain Assessment in Advanced Dementia (PAINAD) Scale. *Journal of the American Medical Directors Association* 2003;4(1):9-15.
3. Shannon K, Bucknall T. Pain assessment in critical care: what we have learnt from research. *Intensive and Critical Care Nursing* 2003;19(3):154-162.
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6. Pasero, C & McCaffery, M. When Patients Can't Report Pain. *American Journal of Nursing* 2000;100(9):22-23.

Previous issues of *Pain Relief Connection*: <http://www.massgeneral.org/painrelief/Newsletter>

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PAIN TOPICS

Pain Can Hurt You

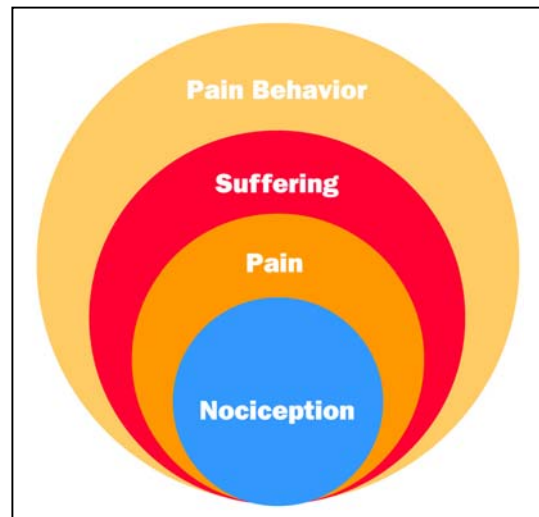
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This article originally appeared as a “Did You Know . . .?” poster, sponsored by the Nursing Research Committee, Massachusetts General Hospital, June 2003. The poster may be viewed at http://pcs.mgh.harvard.edu/CCPD/Nursing_Research/Research_Did_You_Know_2003.asp or <http://www.massgeneral.org/painrelief/Pain%20Topics/Pain%20Can%20Hurt%20You.pdf>

You know that pain warns you and teaches you and makes you ready to fight or flee, but did you know that it can actually hurt you more than the “ouch?”

Pain is a natural and necessary response of our body to harmful or potentially harmful stimuli in our environment and we rely on it to help us survive. However, after the warning, it can cause some unwanted and unneeded havoc in our bodies.

It has long been recorded that pain has many dimensions to its experience (as represented here in a model created by John D. Loeser) but can we definitively tie pain to suffering and other adverse effects?



Consider some of the areas in which pain can hurt you and the research that supports the claim!

Pain induces the stress response

The stress response has myriad effects on the body, several of which can impact negatively on a patient’s overall well being. The sympathetic “fight or flight” response of the body is activated when a person has an onset of injury and pain. The stress response is a very well documented physiological event. Its effects can include:

- Increased work of the heart
- Increased glucose secretion and decreased insulin levels
- Perpetuation of local inflammatory responses
- Inhibition of the immune response

Immunosuppression increases the risk of postoperative infections, while analgesia and neural blockade appear to improve white cell function. A series of sobering experiments in animals with tumors has demonstrated that pain increases the risk of metastasis.

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Pain Causes Suffering

Suffering is commonly described as an emotional response to something that threatens one's identity as a person. Pain and suffering are not synonymous. However, severe pain and especially prolonged pain can lead to or increase suffering. Suffering relates to an integrated interpretation of one's future expectations, symptoms, and personal experiences. Eric Cassell states that "The information on which the assessment of suffering is based is subjective," which means that the diagnosis of suffering is often missed. He states that care providers need to learn the skills of empathetic attentiveness and nondiscursive thinking to be able to help relieve a patient's suffering. It is incumbent upon all providers to treat suffering if at all possible.

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Pain can cause neuroplasticity resulting in continuing pain

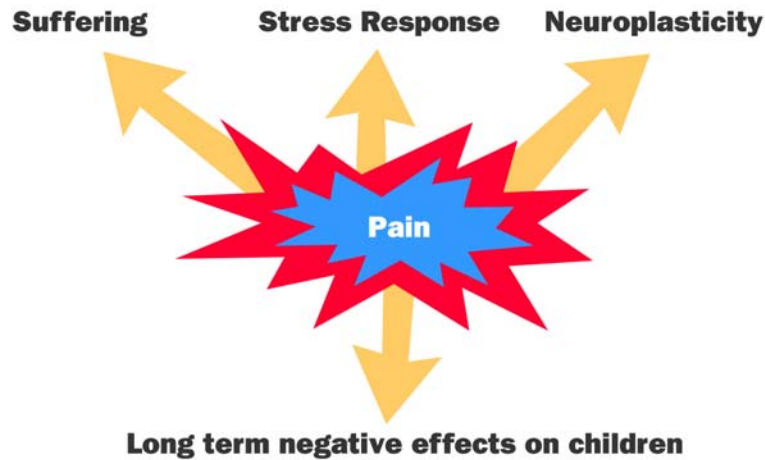
The evidence is now very clear that persistent noxious stimuli can cause neuronal hyperexcitability and lead to the development and maintenance of chronic pain states. In general, the more intense and long lasting the noxious stimulus is, the greater becomes the risk for long-term changes in the central nervous system. Examples of such conditions include post-herpetic neuralgia, phantom limb pain, painful diabetic neuropathy and complex regional pain syndrome. Early and aggressive pain management therapy can help to avoid or attenuate potential neuroplasticity.

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A painful experience can cause lasting pain behaviors in children

Babies experience stress and pain. For a long time, it was debated whether or not newborns experienced pain. There is no longer a debate; they do. Even a fetus demonstrates a stress response to intrauterine needling. Of additional concern is the fact that babies can demonstrate a lasting effect from a painful experience such as circumcision performed without anesthesia or analgesia. There is no need to allow such events to occur. There are safe and effective ways to attenuate pain in babies and children.

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