Global Year Against Acute PAIN

OCTOBER 2010 – OCTOBER 2011

What Is the Problem?

Definition and Impact

Acute pain is awareness of noxious signaling from recently damaged tissue, complicated by sensitization in the periphery and within the central nervous system (CNS). Its intensity changes with inflammatory processes, tissue healing, and movement. The rate at which acute pain resolves is one of its key features [3]. Pain by definition is subjective, but for acute pain the underlying physiological processes involving sensory and autonomic nervous systems, circulating catecholamines and other stress hormones, and inflammatory responses are key. The inflammatory response to acute tissue injury sensitizes nociceptors near the injury and sensitizes CNS pathways that process noxious signals.

In nature, acute pain signals tissue trauma, and sensitization inhibits normal behavior in a protective manner to minimize risk and promote tissue healing. Although unpleasant, acute pain promotes survival. In controlled medical settings such as recovery from surgery or during invasive procedures, acute pain rarely serves a useful purpose and can prove deleterious.

Individuals vary markedly in the intensity of their pain in response to an identical procedure, injury, or noxious condition. Genetics, epigenetics, gender, and personal history all contribute to differences in pain sensitivity. Other factors that enhance individual differences are type of wound or painful condition, phase of wound healing, preexisting stress responses, comorbidities, and in some cases, age. Marked individual variation also exists in the body's handling of and responses to analgesic medications. Psychological factors such as expectations, depression, and anxiety or fear can exacerbate pain intensity and duration. Personal belief systems and the individual meaning of the painful condition or event can exacerbate pain. Patients who exaggerate the negative aspects or impact of their injury or situation ("catastrophize") may experience more severe pain than others. Cultural background or context can also affect pain severity and expression.

Table 1: Examples of acute pain
Postoperative pain
Trauma, burns, or other injuries and conditions that require emergency department visits
Sports injuries
Overuse injuries and strains
Oral mucositis in cancer patients who undergo head and neck irradiation
Chemotherapy-induced peripheral neuropathy in cancer patients
Diagnostic procedures such as biopsies
Labor and childbirth
Acute headaches
Menstrual cramps
Toothaches

Scope of the Problem

In the United States alone, more than 46 million inpatient and 53 million outpatient surgeries take place annually. Over 80% of patients who undergo surgery in the United States report postoperative pain [1]. Of these patients, 86% state that the pain is moderate, severe, or extreme. Most of these patients report worse pain control after discharge from hospital. Differences exist across countries.

Pain is the most frequent reason why patients visit an emergency department (ED) [8], accounting for over 70% of ED visits. More than 115 million ED visits occur each year in the United States, and acute headache alone accounts for 2.1 million of these visits [4]. Acute pain is also a common problem in family practice, sports medicine, and especially in internal medicine.

Despite substantial advances in pain research in recent decades, inadequate acute pain control is still more the rule than the exception. Numerous studies show that fewer than half of postoperative patients receive adequate pain relief [2]. Patients presenting to the ED with significantly painful conditions fare no better. A large study in the United States revealed that the median pain score for ED patients was 8 out of 10, and at discharge the median score was 6. About 41% of patients reported that their acute pain did not change or increased after the ED visit, and almost three quarters reported moderate or severe pain at discharge [7]. Emergency medicine physicians tend to underuse pain medications.

Consequences of Poorly Managed Acute Pain

Uncontrolled acute pain leads to more than just discomfort. Table 2 illustrates that acute pain has many negative consequences for the patient, for the clinicians managing the patient, and for those who manage the hospital or clinic that deals with acute pain. Poor pain management puts patients at risk, creates needless suffering, and increases costs of care.

Table 2: Impact of uncontrolled acute pain

Clinical Perspective
Delayed wound healing due to increased sympathetic tone
Increased rate of anastomotic insufficiency
Increased risk of pulmonary morbidity, including pneumonia due to pain-impaired breathing
Increased risk of thrombosis
Increased mortality risk
Sustained hyperadrenergic stress response with hypertension
Patient Perspective
Needless suffering
Poor sleep
Urinary retention
Limited mobility or breathing and low patient autonomy
Fear and anxiety
Unnecessary partial or total disability with lost work productivity
Slower than necessary recovery of normal function and lifestyle
Reduced quality of life during recovery
Administrative Perspective
Increased length of stay in the intensive care unit or hospital
Higher rates of complication and associated costs
Increased risk of chronic pain development with consequent health care costs
Implication that poor pain control means poor quality of care

The Financial Burden of Poorly Managed Acute Pain

Uncontrolled acute pain results in extended hospital stays following surgery. In 2010, the average U.S. hospital day costs $2129. If only 20 million U.S. surgery patients stay one extra day in hospital due to poorly managed postoperative pain in 2010, the cost amounts to $42,580,000,000. Other costs include the complications listed in Table 2 and delayed mobilization of patients after surgery or injury. Slower recovery due to pain means more days of lost work productivity. Poorly managed acute pain generates unnecessary partial or total disability.

Acute pain often evolves into chronic pain. Persistent pain follows acute postoperative pain in 10–50% of patients who undergo common surgical procedures [5,6]. Severe chronic pain develops in 2–20% of these patients. Emerging evidence suggests that poorly controlled acute postoperative pain is a cause of chronic postoperative pain.

References

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