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Pain management in the ED: A method for the madness

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Editor's note: Recent cases involving the undertreatment of pain, the overtreatment of pain (and thereby the creation of addicts), and whether drug seekers have any legal rights to pain management have created management problems for the emergency physician. This issue of ED Legal Letter will look at some of these cases. The author addresses recent changes in pain management medications, and readers will be able to develop a practical approach to the patient with pain with fewer worries about the legal consequences.

Introduction

The emergency department (ED) is the pivotal organization of a hospital, as its workings result in the community's impressions (reputation) and subsequent use (business) of its services. A hospital's reputation and business are its life's blood; a hospital could not exist in the competitive health care industry without positive reputation and business.

There essentially are two categories of patient populations that utilize emergency services:

1) People who are unable to wait until primary care is available (when they can see a provider in a "routine" visit). These patients either have a traumatic injury or a painful condition that progresses to unbearable pain, or the fear that postponing their visit would result in irreparable harm to themselves; and

2) People who seek frequent medical attention for various conditions but have failed to identify their health care needs with any particular physician. When patients in this category consistently seek opioid medication for pain treatment, and concomitantly have no insurance, they possess a characteristic often identified with drug abusers.¹

As the old "gatekeeper" concept has been eliminated by competition

among various third-party payers, the general practitioner no longer is in a position to stem the tide of using the ED as the dumping ground for the least desirable patient type. Our chance of eliminating the second category of ED patients seems grim indeed. Who, then, can blame the ED practitioner for having a jaded view of pain management? This view often is defined as a tendency to assume that all patients seeking opioids are drug seekers because they are addicted or have a drug problem.

In all specialties of health care, most clinicians quickly can name a patient type whose treatment either gives them the least satisfaction or that they long to eliminate from their practices. Every ED physician longs to eliminate the patient known as the "frequent flyer," who frequents the ED looking for opioids.

The ED clinician's responsibility to treat pain is challenging. Often, the emergency practitioner is

unfamiliar with a patient's history, personality, and character, and only sees a patient briefly. Furthermore, the clinician must balance the need to give adequate analgesia, rather than being so cautious that he underprescribes pain medications, with the alternative potential of overprescribing and essentially becoming the patient's drug supplier.

There now are nonopioid choices for both mild and moderate pain. They can avoid the side effects of opioids and their potential for addiction in those patients vulnerable to it. Yet, so many patients who frequent the ED brush off all nonopioids by saying either, "That doesn't work for my pain," or "I'm allergic to everything except [his or her opioid of choice]."

There essentially are two types of pain: around-the-clock (ATC) pain, and pain that is predictable according to one's activity. When pain is moderate to severe and interferes at certain times each day with the quality of one's life, constant dosing should be used to treat it. Pain that can be predicted (the arthritic hand/wrist condition that causes residual pain after grocery shopping or weeding the garden) should be treated prophylactically with analgesia prior to the inciting activity.

Since a pain scale is inversely proportional to plasma levels of analgesic, low plasma levels result in higher numeric scores. This occurs routinely for patients who are prescribed too few pills and therefore must hold out to make their pills last; when their pain is severe, they want at least two pills and then are back in a holdout mode until the next time they must take two pills.

These constant, yet opposite, peaks and valleys of analgesia and pain scale scores result in unnecessary pain and conditioning for patients. Many of these conditioned patients are created by the clinical practice of routinely overprescribing short-acting opioids and consistently underdosing them. For example, when a patient in family practice presents with tennis elbow, low back pain, or sciatica, a clinician automatically may prescribe as needed (PRN), short-acting opioids as a first-line treatment, when nonopioids may be more effective and less harmful to many patients.

One reason for this automatic use of opioids may be because, until relatively recently, clinicians thought there was no other real choice for analgesia. In the past, the clinician felt comfortable supplying patients with small numbers of pain pills, to use as they pleased,

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under the erroneous perception that a few pills couldn't harm patients. Thus, peaks and valleys of opioid levels in plasma, rather than a constant level just above a patient's threshold for pain, became the norm. In the peaks came the opioid side effects, including a sense of well-being or euphoria that, over time, conditioned the patient to expect it or even to seek it when treating himself for pain. Although vulnerability to addiction may only exist in 6-10% of the general population, the other 90-94% have a potential to become conditioned to expect euphoria with analgesia.² In fact, the hundreds of thousands of patients who are conditioned to seek euphoria simultaneously with analgesia may not be addicted.

The addicted patient will have the disease of "three C's":

- a craving for euphoria;
- loss of control over how he or she obtains euphoria (two or more physician suppliers, opioids with alcohol or cannabis ingestion, etc.); and
- negative consequences to the quality of his or her life.

The conditioned patient, on the other hand, will be certain that nothing but short-acting PRN opioids will result in analgesia. Many patients who could benefit from effective analgesia (without opioids) for mild to moderate pain (they are not conditioned) are automatically given one to two short-acting opioids every four to six hours. This is overprescribing. The automatic use of short-acting opioids for PRN use often, quite simply, is a habit for the majority of physicians because:

1) We just don't think of nonopioids for pain since, until recently, we had so few effective, safe non-opioid analgesics to choose from; or

2) So many patients have said that nonopioids are ineffective for pain (some of these patients are routinely accustomed to experiencing a euphoric sensation when taking pain pills). Using the PRN label but prescribing far too few pills to result in a constant level of analgesia for ATC moderate to severe pain is underdosing. Constant dosing, by prescribing enough pills to allow a steady state plasma level of opioid analgesia, results in the most efficacious analgesia for ATC pain with the least potential for harm to the patient.

Liability issues for malpractice and/or criminal negligence plague all clinicians at every turn, whether underprescribing to avoid scrutiny (for overprescribing) or overprescribing (to appear

compliant with mandated pain management instituted by the Joint Commission for Accreditation of Healthcare Organizations [JCAHO] in 2001). It is a well-known fact that the retrospective investigation of a clinician's intent escapes exacting proof. A clinician's professional opinion holds much weight, yet it seems to be the general consensus that any behavior that attracts oversight from either law or medicine's regulating bodies should be avoided at all costs. Shortly after JCAHO's mandated pain management standards began to be enforced (or scored for accreditation), it became apparent that the threshold for investigating clinicians who undertreated pain was high, while the threshold for investigating clinicians who overtreated pain was low. Many clinicians subsequently saw that the solution to liability in this realm was to consistently give only a few short-acting opioid pills, and deny all refills (undertreat pain). Recent events now demonstrate that the threshold for investigating prescribers who undertreat pain is beginning to plummet. Some recent cases affirm the fact that clinicians who underprescribe may be charged with elder abuse (criminal negligence) or medical malpractice, or may bring on the wrath of JCAHO.

Liability for Medical Malpractice

*Estate of James v. Hillhaven Corp.*³ In 1993, prior to JCAHO mandates for pain management, a nursing home was found liable for failing to give adequate analgesia to a dying man whose physician had ordered PRN opioids.³ The patient, Mr. James, was an elderly man dying in 1990 of metastatic prostate cancer of the hip and the spine. Although his treating physician had ordered morphine elixir (7.5 mL q 3-4 hours PRN) for pain, he died in excruciating pain. His family was with him, and despite repeated requests for analgesia for him, no additional doses were given. The court record indicated that a nurse had judged the patient to be morphine-addicted. If she was concerned about the patient dying while in her care, the doctrine of double effect should apply. That doctrine (introduced at the time of the U.S. Supreme Court hearings on the constitutional right to physician-assisted suicide), stated that during end-of-life care, it is the intent of the health care provider, when practicing pain treatment, that determines whether he or she is practicing good quality medical care and trying to

give the patient a good death, or whether he or she is practicing euthanasia or mercy killing.⁴ Since the nurse in this case did not apply the doctrine of double effect, but rather withheld pain medication, the nursing home was found liable. This case also illustrates why PRN orders for analgesics often should include guidelines for nursing staff (e.g., vital signs, obtundation, pain scale, and when to consult with physician). The jury in the *James* trial determined the nursing home was negligent, and returned a \$15 million award for the family. (The case eventually was settled for much less.)

Liability for Elder Abuse/Civil Negligence

*Bergman v. Eden Medical Center.*⁵ A controversial California jury trial involved 85-year-old William Bergman, who was diagnosed in 1998 with multiple compression fractures and lung cancer.⁵ Morphine given initially caused severe respiratory depression, and subsequently, he was not given titration or breakthrough analgesia (despite continued complaints of severe pain). Dr. Chin, the treating physician, discharged Mr. Bergman on Vicodin capsules, despite his reported difficulty swallowing. Subsequently, Dr. Chin ordered an intramuscular injection of meperidine and a fentanyl patch.

Two days after discharge, the hospice nurse noted the patient's severe pain and tried to contact Dr. Chin, but calls to him were not returned. Another physician succeeded in getting the patient liquid morphine and two more fentanyl patches that greatly relieved Mr. Bergman's pain; he died the next day.

The adult children filed a negligence suit against Dr. Chin for inadequate pain management. During the trial, the standard of care correctly was given as constant dosing rather than PRN dosing for ATC, moderate to severe pain. Under tort reform in California, only a victim of pain and suffering can bring a medical malpractice claim against the party or parties responsible for the pain and suffering; thus, medical malpractice was barred for the cause-of-action in this matter. Instead, the case was brought under civil negligence/elder abuse, and the jury returned an award to the family of Mr. Bergman of \$1.5 million.

By filing under cause of action elder abuse, the plaintiffs had to prove a higher standard — that Dr. Chin's actions were reckless in not adequately

addressing Mr. Bergman's analgesic needs (rather than the lower standard of negligent required in a medical malpractice case). The judge at the lower court level reduced the \$1.5 million amount to \$250,000 (the cap on pain and suffering if the case had been brought for medical malpractice). On appeal in April 2002, the request for a new trial was denied, but the judge increased the award by a factor of 1.5 (bringing the total award to \$350,000) to emphasize the importance of the case.

Liability for Elder Abuse/Criminal Liability

A recent Michigan case was filed when a wound care specialist was indicted for failing to prescribe analgesia for patients on whom he routinely debrided decubitus ulcers.⁶ The attorney general (now governor) of Michigan, Jennifer Granholm, brought the indictment in 2001, saying, "A physician's oath is a sacred promise to protect a patient, never to add to their suffering."

Liability with Licensure Sanctions

A physician's license was sanctioned for failing to provide adequate analgesia in the landmark case of Dr. Paul Bilder, a 55-year-old, board-certified pulmonologist. His license was sanctioned for one year for a pattern of failure to provide adequate pain management for his dying patients, who, for example, were offered only over-the-counter medications for air hunger at the end of life.⁷ Dr. Bilder agreed to have a mentor regularly work with him clinically to help him treat his patients' pain; he also readily acknowledged his lack of training in pain management in both medical school and residency, and took steps to fill in that gap in his knowledge.

Liability for Manslaughter/Criminal Liability

*State of Florida v. James S. Graves.*⁸ Criminal charges for prescribing include diversion, racketeering, euthanasia, manslaughter, or first-degree murder. Dr. James Graves, of Pace, FL, was indicted in July 2001 on two counts of racketeering and two counts of manslaughter; he was convicted in a jury trial on all four counts in July 2002.⁹ The prosecutor argued that Graves essentially was running a cash-only practice that was selling drugs to all clients

who wanted them, without documentation that he knew what he or his patients wished to accomplish toward improving the quality of the patients' lives.

The spring 2003 *Journal of Law, Medicine, and Ethics* contains several articles concerning scrutiny and potential liability for health care professionals in regard to how they treat pain. In one such article, the criminal prosecution of clinicians was evaluated using two case scenarios, or hypotheticals, proposed to the chief prosecuting officials at county levels in Connecticut, Maryland, Oregon, and Washington.¹⁰ This study, along with another companion article,¹¹ indicated some positive changes and identified goals for future progress on the nation's road to efficacious pain management with the least harm to patients who are prescribed opioids.

The author of the first article, Stephen J. Ziegler, a professor of political science at the University of Washington-Pullman, found that most prosecutors did not believe that the medical profession polices its own, yet they readily acknowledge limited experience or proper pain management education and understanding when dealing with such matters. It generally was agreed that the most likely culprits for diversion of pharmaceuticals were deceptive patients, followed by a doctor's lack of pain management knowledge, and only infrequently by impaired or dishonest doctors. It also generally is accepted that dosage, frequency, and duration of opioid use alone do not constitute sufficient evidence to indicate inappropriate use.

Prosecutors further said that important factors in whether to prosecute included: 1) whether the medical board has investigated and handled the matter appropriately; 2) whether the board investigated but failed to take appropriate action; and 3) whether the doctor emphasized his own financial interests over patient care. Since one consensus noted above was that the prosecutors felt they were out of their realm in understanding pain management, it may be difficult for clinicians to understand how they subsequently could discern whether medical boards had or had not handled the matter appropriately.

The two scenarios that were used as survey hypotheticals were:

- A pharmacist, recognizing his responsibility to ensure that prescriptions for controlled substances are for legitimate medical purposes, is asked to fill a morphine supply for more than 30 days. He and

the local police suspect the physician/prescriber is contributing to the drug problem in the community. The police seek your (the prosecutor's) advice.

Would you indict or investigate the clinician?

- A hospice physician summoned to the home of a dying 25-year-old AIDS patient gives repeated doses of morphine and diazepam for air hunger and a respiratory rate of 44/minute after furosemide failed to relieve the patient's severe shortness of breath/anxiety; the patient dies during this titration. Would you prosecute the physician?

Of the 83 respondents in the study concerning the first scenario, 45.8% estimated the likelihood of recommending police investigation at 40% or less; 43.4% estimated the likelihood of recommending police investigation to be 60% or more. Half of the respondents claimed they didn't know whether an offense had been committed, and gave a 60% or greater likelihood of referring the matter to the state medical board in lieu of investigation or prosecution.

In the second scenario, similar findings emerged. The article pointed out a significant opportunity for state medical boards to take leadership roles in proper pain management education for both the medical and legal professions. Instead of more statutes from their end, the prosecutors would welcome better medical profession guidelines so that clinicians could find the balance requisite in efficacious pain management.

The second article surveyed 36 medical boards and, although the survey showed a definite positive trend towards eliminating volume or doses of opioid as reasons to investigate, it also noted widely varying responses and states that medical boards are far more likely to consider complaints of overprescribing than of underprescribing.

The article calls for a lower threshold for investigating physicians who are not doing enough to evaluate and efficaciously treat pain in spite of a plethora of widely accepted pain management guidelines.

Ideally, the oversight for the medical profession should rest within the profession itself. One solution to this need to police one's own would be to develop a policing network that would consist of panels of physicians in all states who have no financial or political issues with any physician whose work they are asked to evaluate. They could be called on to review a physician's management of

pain, for example, if circumstances accumulated that warranted such oversight.

A Method for an Approach to Analgesia in the ED

All clinicians about to prescribe opioids for analgesia should be willing to ask — and determined to have answered — the question that either law or medicine overseers might ask: “Where are you going with this pain management plan?” As prescribing clinicians, we have a right to an answer for that question from any patient whom we treat for pain. Definitions for success are critical even in the short-term treatment realm of an ED. A success definition for both functionality and a numerical rating scale (NRS) is ideal. A chronic pain patient recently chose “to be able to ride a bicycle with my three children” and “a 5 on the [10-point] pain scale rather than the 7 or 9 I live with most days” as his two success definitions. In an ED pain patient encounter, on the other hand, a success definition for functionality should be preceded by patient education as to whether function should be minimal (strict evaluation and rest of the injured part) or not. A success definition for the NRS should include patient education, as well (never promising zero pain, but striving for perhaps a 4 or lower on the pain scale).

A time frame for success also is critical. In a chronic pain patient scenario, an agreed-upon time frame before reevaluation may be six weeks, three months, etc. In an ED, a time frame should include sufficient time for an elective physician follow-up (up to five days), or until expected resolution of the pathology (as much as seven to 10 days).

As a rule, clinicians often underestimate patients’ pain. An interesting study¹² using 200 ED patients and their 48 physicians rated patients’ pain using a VAS (visual analog scale) both on arrival and discharge. The systematic extent of miscalibration (physicians gave significantly lower ratings than did patients both on arrival and discharge) was greater with expert than with novice physicians — perhaps clinicians become conditioned to underestimate patients’ pain.

A recent study validated the verbally administered NRS (0-10 rating scale) in the ED setting.¹³ This study assessed the comparability of the NRS and the VAS as measures of acute pain in 108 ED patients at presentation, 30 minutes, and 60 minutes later. NRS scores were correlated strongly to VAS

scores at all time periods. When educating patients about the NRS, it is important not to unintentionally demean their pain. For example the example, “Put your hand in a blazing fire. . . . Now you can’t take it out! . . . That’s severe pain!” often will engender anger rather than cooperation from the patient. A better way to educate a patient about what the NRS means might be to ask the patient to imagine that his favorite meal is set before him; that he hasn’t eaten for more than 12 hours; and that a patient in severe pain would not take a bite because he wouldn’t want to bite or chew it and that he couldn’t taste it, because his entire psyche is occupied with severe (7-10 on the scale) pain. A patient in moderate pain (5 or 6 on the scale) would take a bite, recall its goodness, then perhaps eat no more, as it is difficult but possible to distract this patient from pain, even for a brief time. The patient in mild pain might well be distracted enough to eat the entire meal and enjoy it, as it is relatively easy to distract a patient in mild pain (1 to 4 on the scale). When a patient seems uncooperative to using the NRS, he may be concerned that you will trivialize his pain; he must be told that that will not be the case.

Wherever inflammation is etiologically associated with pain, an NSAID should be prescribed; if the pain is mild to moderate, the NSAID alone may be sufficient (especially in nonconditioned patients). If the pain is moderate to severe and an opioid will be prescribed, the NSAID will give synergism for analgesia and, thus, will decrease the amount of opioid used and provide an anti-inflammatory effect. When the pain is ATC and cannot be predicted for foreseen activity, constant dosing is the key to both the avoidance of deleterious effects and the resultant efficacious resolution of the underlying malady. This constant dosing is indicated not just for opioids, but for NSAIDs, as well, since compliance, steady state levels of the agent, and avoidance of peaks and valleys then will be achieved.

How can the ED clinician identify and distinguish between the legitimate acute or chronic pain patient and the patient who is either conditioned or addicted? A recent American Medical Association monograph¹⁴ is helpful in such endeavors. Both the patient who is conditioned and the patient who is addicted will demonstrate some of the adverse consequences of opioid use — decreased functionality, negative affective state, and/or intoxication. The

patient who is addicted will develop compulsive use of opioids to the detriment of his or her quality of life.

The so-called pseudoaddict is a patient who seems to exhibit the behaviors we attribute to an addict (a compulsion to obtain and a craving to use opioids for their euphoric rather than their analgesic effects with resultant negative effects to the quality of his life), but in fact is simply seeking analgesia, since he has not been titrated to or treated adequately to an analgesic state. These patients are wrongly labeled as having a problem with drugs, but in fact, they have a problem with untreated pain.

The ED Approach to Pain in Children

Children brought to the ED in pain often are challenging to treat. Their helplessness is a source of empathy for clinicians, their frequent inability to reason is frustrating, and the road to analgesia for them is barred by the added factors of their fear and anxiety. When venipunctures, painful procedures, or intravenous fluids are required for care, local anesthetics are indicated.

A topical anesthetic must penetrate the skin surface as well as the dermis to block the A-delta and C fibers from pain transmission. A 4% gel of amethocaine, a derivative of tetracaine, under an occlusive dressing for 30 minutes gives good analgesia for venipunctures; EMLA cream (a mixture of lidocaine and prilocaine) also is used, but it has a longer onset of action (one hour). Liposomal lidocaine (ELA-max) facilitates transcutaneous delivery and is available as an over-the-counter medicine that can be massaged into the skin without occlusion, providing skin anesthesia within 30 minutes. Even with its shorter application time, ELA-max gives analgesia equivalent to EMLA.¹⁵ Acetaminophen, either orally or rectally, (at doses of 10-15 mg/kg q 4-6 hours) gives good analgesia by blocking pain impulse generation peripherally (in mild to moderate pain), and is an antipyretic by way of its inhibition of cyclooxygenase in the brain, but it is not an anti-inflammatory agent. Neonates have a slower elimination half-life, so the drug must be given less frequently.¹⁶

Nonopioid choices for mild to moderate pain are first line, and the NSAIDs appear to have a lower incidence of renal and gastrointestinal effects in

pediatric patients than they do in adults.^{17,18} Ibuprofen in liquid form often is chosen (100 mg/tsp) according to weight. The only parenteral NSAID presently available is ketorolac (Toradol), and in doses of 0.8 mg/kg parenterally, it has been shown to be effective for mild to moderate pain in the ED setting.¹⁹

An agent for severe anxiety/agitation, such as midazolam (Versed) or diazepam (Valium), often can eliminate the need for opioids; a child with lacerations often can have local anesthesia injected and wounds repaired without the wait required after topicals are applied for pre-emptive analgesia simply by giving an oral dose of midazolam. With its short-acting and short-recovery interval, it is given orally (0.5-0.75 mg/kg) 20 minutes prior to treatment. Overdose of this medication (respiratory depression or hypotension in a dehydrated patient) is rare, but reversible with flumazenil (IV at 0.1 mg increments q 2 minutes), which takes effect in one to three minutes; however, its effect may last only 30-45 minutes and the patient may become re-sedated after the flumazenil wears off.

The use of opioids in children, when needed for control of moderate to severe pain, is to be encouraged. A morphine bolus of 0.05-0.1 mg/kg IV every two to four hours often is sufficient for moderate to severe pain, and is effective in five minutes with up to three hours' duration. An alternative is IV hydromorphone (0.02 mg every two to four hours). Since IV boluses are effective but their duration of action is short, continuous infusions can be used to circumvent fluctuations in plasma concentrations and give a more prolonged analgesia. Continuous infusion of morphine (0.02-0.03 mg/kg/hr, or hydromorphone (0.006 mg/kg/hr) would be indicated for more prolonged analgesia (during and after procedures, etc.).²⁰

Pain Management in the ED Adult Patient

The approach to pain management for the adult ED patient in each pain category (severe, moderate, or mild) should be different.

Severe: A patient with severe pain cannot be distracted sufficiently even to get a helpful history or physical. He is the patient "on all fours" (renolithiasis, active peristalsis against a mechanical gastrointestinal (GI) obstruction, multiple trauma victim who is mentally alert with stable vital signs, etc.). Such a patient needs emergent analgesia,

most often using opioids, with their peak plasma level about six minutes after IV administration. Although titration with analgesia is a consideration, it is best to give each IV dose time to take effect (5-10 min.) rather than to give too much and end up with an obtunded patient unable to cooperate with his diagnostic work-up.

When ED patients get analgesia prior to a diagnostic work-up (the essence of which is the physical exam), the more common opinion is that such analgesia will not compromise the diagnosis but will, rather, affect a more humane route to the most efficacious care. Certainly in acute abdomen pathology, the patient's physical exam must be adjusted (as to the clinician's technique) after the analgesia, perhaps by applying slightly more manual pressure; this can be done readily and is acceptable to the majority of surgeons or other clinicians who will resume a patient's care after ED work-up and preliminary care. A recent convincing study conducted in the department of emergency services at Massachusetts General Hospital looked at the effects of morphine analgesia on diagnostic accuracy in abdominal pain.²¹ Although only 74 patients were enrolled in this study, it is the largest study to date on this topic. Patients were randomized to placebo or IV morphine sulfate. Diagnostic impression and physical examination findings were collected before and after a period of drug titration to a maximum of 15 mg morphine sulfate over 60 minutes. The physicians' diagnoses at the end of the titration period were clinical (prior to imaging results). Diagnostic accuracy did not differ between the groups (64.2% vs. 66.7%). There were no instances of opioid administration masking physical examination findings.

The choice of opioid should have full agonist properties at the mu receptor; the two most commonly used in the ED setting are IV morphine and hydromorphone. Morphine is cheap, effective in five minutes (at doses of 0.1-0.2 mg/kg), and lasts two to three hours.

Hydromorphone, five to eight times more potent than morphine, is effective in one minute, lasts a shorter time than morphine, but does not accumulate in the presence of renal failure, making it a better choice for patients with renal insufficiency. At doses of 0.01 mg/kg q 5 min., it often is better tolerated when morphine causes irritability, hallucinations, or disorientation. Fentanyl, 60-80 times

more potent than morphine, with its short onset (1-2 minutes) and duration (20-30 minutes), at a dose of 0.0005 mg/kg q 5 min. is another choice. Etomidate with similar short onset and duration also is well suited for a short burst of analgesia for reductions (e.g., of fractures or dislocations); however, these latter two choices are more expensive.

Unfortunately, the frequent use of meperidine in many EDs, despite JCAHO's exhortation to minimize its use, continues. The active metabolite of meperidine, normeperidine, with its prolonged half-life of 15-20 hours in patients with normal renal failure (longer half-life in patients with renal insufficiency), and its cerebral toxicity with accumulation²² may not be a concern in the ED, but it should be for two reasons:

- In the report of a recent case of ED use of meperidine for a 55-year-old woman with a history of sphincter of Oddi dysfunction, mild renal insufficiency (creatinine 0.6 mg/dL) and mild liver insufficiency (aspartate aminotransferase of 56 U/L and alanine aminotransferase of 34 U/L), escalating doses of the opioid were begun in the ED and continued after hospital admission.²³ On day four of admission, the accumulated meperidine dose was 2125 mg, with adverse consequences to the patient; and,

- Besides its potential for cerebral toxicity, meperidine has marked euphoric properties. Although it is tempting to the ED clinician to use it IM, it contributes heavily to conditioning patients to expect and demand euphoria for the pain that brings them to the ED. In the ED treatment of migraines, for instance, when meperidine often is given, opioids are not first-line treatment at all (NSAIDs followed by triptans are recommended²⁴), yet the migraine patient requesting/demanding Demerol (meperidine) is the very frequent flyer who often is the cause of ED clinicians' frustrations.

One plan to minimize Demerol use would be to declare a future date that would mark the end of meperidine's use for urgent care pain management, and a written announcement made available to all frequent flyers; this announcement would be given to patients seen in the ED who are deemed to be frequent fliers, and would offer them a chance to attend educational sessions on pain control (which include information about conditioning and the deleterious side effects of meperidine) prior to the date after which meperidine will no longer be available.

Moderate: A patient with moderate pain will rate his pain on the NRS a 5-6. He may or may not require analgesia prior to obtaining a history and physical. Distraction from his pain periodically during a history and physical simply may result from his ardent desire to cooperate fully with the evaluating clinician. On the other hand, he may require analgesia for various reasons, including frustration or anger about past ED experiences, or from present personal issues unrelated to his illness.

If an ED patient in moderate pain requires analgesia prior to the history and physical, it often can be given orally, since lab results, including x-rays, often will not be available for the 45 minutes it takes for the analgesia to reach steady state plasma levels for analgesia, at which time a thorough history and physical can be obtained. One could argue that until the history and physical are done, the lab studies needed are not yet determined; in the real world, unfortunately or not, in most busy EDs it is routine to get preliminary lab work based on the patient's chief complaint or the precursory history alone.

The choices in prescription oral analgesia for patients with moderate pain are an NSAID, propoxyphene (Darvon), tramadol (Ultram), or an opioid (e.g., codeine or hydrocodone [Vicodin]). Propoxyphene, a drug of dubious distinction,²⁵ and meperidine (Demerol) are the two most euphoric opioids available. The accumulation of propoxyphene in the plasma, if given every six hours routinely, will allow the patient to "step up" to analgesia after six to nine doses (or after 24-48 hours), but the euphoria is experienced about 45 minutes after the first dose.

If NSAIDs are to be given, there are good reasons to consider the COX-2 inhibitors, not just because they are safer,²⁶ but also because preliminary studies show that they result in both analgesia and in anti-inflammation. Recent studies have thrown doubt onto ibuprofen's synergism for analgesia when combined with opioids in patients undergoing total hip surgery,²⁷ but the COX-2 inhibitors clearly have shown a 40% reduction in postoperative opioid use when concomitantly used for that same post-operation patient type.²⁸ In this study, patients are given a placebo or valdecoxib (Bextra), at 20 mg or 40 mg one to three hours before hip replacement, and then q 12 hours thereafter for 36 hours post-operation. All patients were

given morphine via patient-controlled analgesia (PCA) pump post-operation, and the amount of morphine used in each group was recorded. The amount of PCA morphine was decreased by either 43% (valdecoxib 40 mg group) or 41% (valdecoxib 20 mg group) compared to the placebo group. In addition, the study showed that the patients getting 43% or 41% less morphine were more satisfied with their pain management, because they had less grogginess, nausea, confusion, etc.

Mild: A recent study showed that most patients (45 out of 60) presenting with painful conditions to an urban ED had not taken any medication for pain relief prior to their ED visit. The reasons (16 in all) for this were varied, and were not always because the patient "did not think about it." The three most common reasons were: 1) "I don't like taking tablets"; 2) "I ran out of tablets"; and 3) "The pain wasn't bad enough." When patients have mild pain, rating 1-4 on the NRS, analgesia recommendations either can be prescribed or suggested (if over-the-counter) on discharge, when the patient is given discharge instructions. For example, a patient with a seemingly infected wound may

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feel that delay of medical attention will result in irreversible harm to himself, so he presents to the ED rather than waiting until the following day when care may be less expensive.²⁹ His pain, however, may be mild; and on discharge from the ED, he will be instructed to constant-dose his antibiotic, but that for best pain control he should use strict elevation and rest of the affected body part in addition to constant dosing one 500 mg acetaminophen tablet every four hours (for a total of 3 g/day).

If prescribed analgesics are utilized, the choices are NSAIDs, other nonopioids, and opioids. If NSAIDs are prescribed in the ED setting, in view of both a lack of follow-up and, often, of compliance, we should use as safe a product as possible for any given patient (or document that the patient had education concerning both nonselective and specific COX-2 inhibitors, emphasizing the importance of vigilance or cumulative effects).

In 1997, a total of 113,000 patients were admitted to hospitals for complications of nonselective NSAIDs (from melena with hypotension to hematochezia or hematemesis), and 16,000 of those patients died from gastrointestinal bleeding. A review of these patients' histories showed that 60% of them had no pre-emptive symptoms prior to the complicating event that brought them to the ED.³⁰ The COX-2 inhibitors clearly have shown less gastrointestinal toxicity than the nonselective class of NSAIDs;³¹ they should be constant dosed for acute pain to obtain their maximum ATC analgesic and anti-inflammatory effects.

If short-acting opioids are chosen for analgesia, the best approach for dosing instructions should be associated with whether the pain will be ATC or present only with certain activity (e.g., with physical therapy/physical activity ordered as an outpatient). A patient who will be assigned physical therapy should be told that the level of pain medication in his plasma when he gets to physical therapy has a great role to play in his rehabilitation. If ATC is presumed, then constant dose the medication every four hours either just during waking hours (if a supine and comfortable position at night allows the patient to sleep without awakening in pain), or during all hours of each day and night (if the pain is present and interferes with sleep, the patient should set an alarm for three to four hours after going to bed; and when the alarm goes off, he should take another pill and go back to sleep). The patient

should be instructed to avoid taking two pain pills at a time, to avoid the sudden rise in opioids and the resultant peak of opioid and possible side effects, including euphoric sensations.

If nonopioids are chosen, tramadol (Ultram) and its acetaminophen combination (Ultracet) are commonly used examples. Being neither an opioid nor an NSAID, tramadol has centrally acting activity as a weak mu opioid agonist and as an inhibitor of reuptake of both serotonin and norepinephrine. An important consideration when prescribing tramadol is that since it lowers seizure threshold, it is contraindicated for patients with a seizure disorder, head trauma history, or for patients on selective serotonin reuptake inhibitors or opioids.

The ceiling effect for combination medications often does not have to do with the central ingredient, but rather with whatever is combined with the central ingredient. Tramadol/acetaminophen, with its 37.5 mg of tramadol and 325 mg of acetaminophen (rather than the 500 mg in many hydrocodone products), is considered safer than hydrocodone/acetaminophen. Two tablets of tramadol/acetaminophen q 6 hours (the maximum recommended) would result in 2.6 g acetaminophen per day, whereas two tablets of hydrocodone/acetaminophen every four hours (the maximum recommended) results in 6 g acetaminophen each day. The addiction or conditioning properties of tramadol now are being recognized, and thus, exceeding dosage recommendations should be avoided.

Summary

When probable cause exists, oversight bodies — whether in medicine or law — have a right to ask clinicians the same question: Did we know where we (and thus the patient) were going with our patients when treating their pain? Did we have a plan to improve their functionality and, thus, their quality of life? The only proof of intent we have to offer in answering their question is to show documentation of our definitions for success and our follow-up evaluations of the patients that show progress toward these definitions.

As pain management education becomes more widespread,³² law and medical oversight bodies will be able to make guidelines more definitive, since the objectives of both law and medicine will

then coincide.

ED clinicians have the potential of impacting pain management in a very critical way. By refusing to supply patients with pain medications for their own use, they can begin to offer efficacious pain treatment using a structured plan that will result in less frustration for themselves and less deleterious effects on patients from the medications they choose.

Endnotes

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CE/CME Questions

9. Which of the following statements regarding pain management in children is *false*?

CE/CME Objectives

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- When venipunctures, painful procedures, or IV fluids are required for urgent care, local anesthetics are indicated.
 - A topical anesthetic must penetrate the skin surface as well as the dermis in order to block the A-delta and C fibers from pain transmission.
 - EMLA cream (a mixture of lidocaine and prilocaine) may be used prior to venipunctures, but it has a longer onset of action (one hour).
 - Acetaminophen, either orally or rectally, (at doses of 10 to 15 mg/kg q 4 to 6 hr.) gives good analgesia by blocking pain impulse generation peripherally and is an antipyretic by way of its inhibition of cyclooxygenase in the brain.
 - Neonates have a faster elimination half-life, so the drug must be given more frequently.
10. Which of the following statements regarding mild and moderate pain sufferers is *false*?
- The choices in prescription oral analgesia for patients with moderate pain are an NSAID, propoxyphene, tramadol, or an opioid (such as codeine or hydrocodone).
 - NSAIDs are both analgesia and anti-inflammation.
 - Most patients with mild pain do not take medications prior to their ED visit.
 - Mild pain sufferers should never be given opioid pain medications.

11. Which of the following statements about frequent-flyer patients seen in most EDs is *true*?
- They routinely are addicted to opioid medications.
 - They never have true pain and always seek pain medications to get high.
 - They present a challenge to the emergency practitioner, as they often have unrelieved pain despite concomitant treatment by general practitioners.
 - They should be prescribed what they want as they know their pain needs better than do ED physicians.
12. Which of the following statements about constant dosing of analgesic medications is *true*?
- It leads to overdosing and should be used only rarely.
 - It should be used for the treatment of all pain.
 - It is to be encouraged when using all pain medications except opioids.
 - It leads to the most efficacious analgesia when pain is ATC and cannot be predicted.

Answers: 9-E; 10-D; 11-C; 12-D.

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