

Problems and barriers of pain management in the emergency department: Are we ever going to get better?

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Abstract: Pain is the most common reason people visit emergency rooms. Pain does not discriminate on the basis of gender, race or age. The state of pain management in the emergency department (ED) is disturbing. ED physicians often do not provide adequate analgesia to their patients, do not meet patients' expectations in treating their pain, and struggle to change their practice regarding analgesia. A review of multiple publications has identified the following causes of poor management of painful conditions in the ED: failure to acknowledge pain, failure to assess initial pain, failure to have pain management guidelines in ED, failure to document pain and to assess treatment adequacy, and failure to meet patient's expectations. The barriers that preclude emergency physicians from proper pain management include ethnic and racial bias, gender bias, age bias, inadequate knowledge and formal training in acute pain management, opiophobia, the ED, and the ED culture. ED physicians must realize that pain is a true emergency and treat it as such.

Keywords: oligoanalgesia, emergency department, pain management

Introduction

Pain is the most common reason that patients seek care in emergency rooms. Pain is no respecter of person, not discriminating on the basis of gender, race or age. It strikes acutely or lingers chronically, causing physiological and social disturbances and forcing people to seek assistance. In light of the impact that pain makes on patients, emergency department (ED) physicians need to be well versed in its management, particularly in its acute presentation. Yet, the state of pain management in the ED is disturbing: ED physicians often do not provide adequate analgesia to their patients, do not meet patients' expectations in treating their pain, and struggle to change their habits regarding the use of opioid analgesics. Despite over 25 years of research on pain management conducted in the US, Canada, and Australia, multiple resultant guidelines on pain management and regulatory statutes on treating pain from the American College of Emergency Physicians (ACEP), the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and the American Pain Society (APS), health providers still struggle to resolve the problem of "oligoanalgesia" in EDs. This article will review some of the common problems with and barriers to pain management in the ED.

Problems of pain management in emergency department

The most common and pressing problem of pain management in EDs is the under-treatment of pain, known as "oligoanalgesia". A review of the literature highlights the following causes of oligoanalgesia in the ED: failure to acknowledge pain, failure to assess initial pain, failure to have pain management guidelines in ED, failure to

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document pain and to assess treatment adequacy, and failure to meet patient's expectations regarding pain management.

Failure to acknowledge pain

One of the first studies addressing the issue of oligoanalgesia in the ED was a retrospective chart analysis by Wilson and Pendleton in 1989.¹ Out of 198 patients evaluated in the study, 56% of patients received no analgesic medications while waiting in the emergency room; 69% waited for more than one hour before receiving analgesia, and 42% waited for more than two hours. Of those receiving analgesics, 32% received less than optimal analgesic doses. Five years later, Lewis and colleagues² published a retrospective study of 401 patients treated for acute bone fractures in eight emergency departments, and demonstrated that only 121 (30%) patients received analgesia and indicated that the ED physicians failed to acknowledge and manage patient's pain. In evaluating 208 children with burns attended to in the ED, whose average age was five years old, 87% of patients had received no analgesia.³ In another ED setting, where 172 children presented with acute limb fractures, only 84 patients received analgesic medication while in the ED.⁴

It has been more than 25 years since the first study describing "oligoanalgesia" in the ED was published.¹ Multiple publications in North America have explicitly addressed the inadequate acknowledgement, assessment and treatment of pain in emergency rooms. Despite the volume of literature, recent publications suggest that emergency physicians have not improved their analgesic practices. In 2007, Todd and his colleagues evaluated the current state of ED pain management practices by enrolling 842 patients at 20 US and Canadian hospitals.⁵ The results showed that only 60% of patients received analgesics after lengthy delays with median waiting time for analgesics at 90 minutes (range, 0 to 962 minutes). Seventy-four percent of patients were discharged in moderate to severe pain.

Failure to assess initial pain

The assessment of pain in the ED is poor despite multiple studies on implementation of different pain assessment scales. The factors that directly affect ED physicians assessment of pain include physicians skepticism, the validity of patients self-report of pain, attempts to objectify pain experience, and immediate diagnosis of pain instead of immediate treatment. In 2000, a study by Guru and Dubinsky evaluating the perception of pain in the ED showed that both physicians and nurses gave statistically significant lower pain ratings than the patients and no pain scale assessments were employed while reviewing patient's charts.⁶

Recent guidelines, including JCAHO and ACEP clinical policies on pain management, require the assessment of pain for all patients presenting to the ED and mandate that pain assessment be recorded in the medical record by using a pain scale.⁷

In 2004, Nelson and colleagues evaluated the benefits of having mandated pain scales in the ED for analgesic administration.⁸ Five hundred and twenty-one encounters were reviewed prior to the implementation of the pain scale and 479 encounters were reviewed after the introduction of pain scale. The results showed that analgesic use increased from 25% to 36%, and analgesics were administered more rapidly after the pain scale was introduced: 113 minutes vs 152 minutes. Analgesic use correlated with pain severity. In 2007, Baumann and colleagues showed that by implementing a pain scale built into the medical records, proportion of patients with documentation of pain assessment increased from 41% to 57%.⁹

Due to the absence of objective measures, the clinician must depend on the patient to supply key information on the localization, quality, and severity of the pain. However, children, especially young ones, constitute a good example being "too young to need analgesia." Thus, in a retrospective comparative analysis of pain management by evaluating pediatric ED visits for extremities fractures and burns between children aged 2–6 years old and children aged 6–10, the former group of children received significantly less analgesia: 71% of children with fractures and 50% of children with burns received less or no analgesia.¹⁰

Failure to implement pain management guidelines and protocols in the ED

In 1996, Goodacre and Roden showed that introduction of the pain protocols in the emergency room reduced the percentage of patients with unsatisfactory analgesia from 91% to 69% and increased the use of intravenous analgesia, from 9% to 37%.¹¹

A retrospective chart analysis by Somers and colleagues evaluated 262 children and showed that implementation of a pain protocol significantly improved the number of children who received analgesia within 30 minutes of triage.¹²

A study by Curtis and colleagues¹³ explored the effect of a protocol-driven pain management on time to initiation of analgesia among trauma patients. The results showed that introduction of the protocol resulted in a decrease in the mean time to initiation of analgesia from 53.61 minutes to 27.94 minutes ($p = 0.001$). The percentage of patients receiving analgesia within the first 30 minutes of arrival increased from 44.4% to 74.6% ($p < 0.001$).¹³

Failure to document pain

In 2003, Eder and colleagues¹⁴ evaluated the documentation of pain in the ED by physicians and nurses by retrospective analysis of 261 charts. Initial pain assessments were present in 94% of the charts, but a pain scale was used for only 23% of the patients. Subsequent to administration of analgesics, only 39% of the charts had pain documentation and a pain scale was used only 19% of the time. After the therapy, nurses were two times more likely to document pain than physicians (30% vs 16%).¹⁴

An issue of improper documentation of pain among pediatric patients is particularly evident in infants and toddlers. By surveying 24,707 visits to the ED with painful conditions in a period of three years, only 44.5% of visits had documented pain scores with subsequent analysis showing the younger age to be the most vulnerable group.¹⁵

Failure to meet patients' expectations

One of the crucial factors in managing pain in ED is to meet patient's needs and to satisfy their expectations. ED patients have very high expectations for pain relief, much higher than those with postoperative pain do. Fosnocht and colleagues found that most ED patients expect a mean pain relief of 72%; about 18% of patients expect 100% pain relief. ED patients expect the pain relief as soon as possible after arrival. The mean expectation for time to analgesic administration for ED patients is 23 minutes, compared with actual mean time to analgesic administration of 78 minutes.¹⁶ In a pain survey of 68 fast track patients, Blank and colleagues showed that 60% of the patients went home with more pain than they were willing to accept; 51% of the patients were offered something for pain, however, only half of them said the pain relief was adequate.¹⁷ Concern about the patients' pain is as important as providing the analgesia itself. To reiterate this, in the aforementioned study by Fosnocht and colleagues, 45% of ED patients in pain received pain medication, but 70% reported that their needs for pain relief were met at discharge.¹⁶

In a study by Nicol and Ashton-Cleary evaluating the reasons patients do not take painkillers prior to arrival to ED, the most common reason was that patients did not like taking tablets.¹⁸

Barriers to treatment of pain in the emergency department

The barriers that preclude ED physicians from proper pain management include ethnic and racial bias, gender bias, age bias, inadequate knowledge and formal training in acute

pain management, opiophobia, the ED environment, and the ED culture.

Ethnic and racial bias

Historically, ethnicity and race have been major forces in establishing the guidelines and policies toward pain management in the ED. The growing body of literature and 20 years of extensive research report that patients who are part of racial or ethnic minorities are constantly being under-evaluated and undertreated for their painful conditions in the ED. The majority of data regarding ethnicity and race comes from studies of adult patients presenting to ED with painful conditions, but some evidence exists for the pediatric population.

In 1993, Todd and colleagues conducted a retrospective cohort study in which they sought to determine whether Hispanic patients with isolated long-bone fractures were less likely to receive analgesics in the ED compared to similar non-Hispanic white patients.¹⁹ In a subsequent study conducted in 1994, Todd and colleagues attempted to determine whether physician estimates of pain severity are influenced by patient ethnicity. In this prospective cohort study, after evaluating 138 non-Hispanic white and 69 Hispanic patients with traumatic injuries to extremities, no differences were found between non-Hispanic white and Hispanic patients in their pain assessments.²⁰ In 2000, Todd and colleagues compared African American patients with extremity fractures to similarly injured white patients with respect to provision of pain management in the ED. Analgesia was provided in 57% and 74% respectively, despite similar records of pain complaints in the medical record for both groups.²¹

In 2002, Fuentes and colleagues conducted a retrospective cohort study of adult patients in the ED in order to determine whether nonwhite patients with long-bone fractures were less likely to receive analgesics than white patients with similar injuries. Even after stratification for gender, bone fractured, and need for reduction there were no discrepancies toward reduced analgesia administration in any ethnic/racial group.²²

In 2003, Tamayo-Sarver and colleagues evaluated the relationships between race or ethnicity and desirable social characteristics on physicians' decisions to prescribe opioid analgesics. The results showed that for 53% of participating physicians, patient race or ethnicity had no effect on their prescription of opioids upon discharge.²³ Yen and colleagues in 2003 analyzed data from the National Hospital Ambulatory Medical Care Survey for 1992 through 1998 by evaluating

the use of analgesics among children of different races and ethnicities with isolated long bone fractures in EDs. One thousand and thirty patient records were evaluated and no difference in analgesic prescription or opioid analgesic prescription was found between the African American and Hispanic children compared with non-Hispanic white children with long bone fractures in the EDs.²⁴

A study conducted by Pletcher and colleagues attempted to determine whether any significant changes occurred in administering opioid analgesia in the ED and whether racial or ethnic disparities in prescribing opioids in the ED have decreased from 1995 to 2005.²⁵ The results showed that white patients with pain were more likely to receive an opioid pain medication (31%) than African American (23%), Hispanic (24%), or Asian/Other (28%), respectively. Disparities were more prominent in patients with severe pain, long-bone fractures, and nephrolithiasis as well as among children.

However, a recent prospective observational study by Bijur and colleagues (2008) evaluating 345 patients with long bone fractures showed that 74% of Hispanic (95% confidence interval [CI] = 67% to 80%), 66% of African American (95% CI = 57% to 75%), and 69% (95% CI = 57% to 78%) of white patients received opioid analgesics. In addition, there were no significant differences in time to administer treatment, in dosages of analgesics, in the route of the analgesics were given, or in the changes in pain.²⁶

Gender bias

Another important issue that affects adequate pain management in the ED is gender-associated analgesia. While gender physiology and pharmacogenomics are outside the scope of this paper, there are a number of studies that have evaluated the effects of gender bias on receiving proper analgesia in the ED.

Rafty and colleagues in a prospective cohort study demonstrated that female patients reported more pain and were perceived by providers to have more pain than male patients in the ED. Female patients also received more pain medications and stronger analgesics.²⁷ Safdar and colleagues conducted a multicenter, prospective, observational study in 19 EDs across the US and Canada with the goal of determining the influence of patient gender on ED pain management practices.²⁸ Among the patients surveyed, women received more analgesia in the ED than men (74% vs 64%). However, no difference was noted between genders in two-point pain reduction in the ED, in the frequency of pain assessment, and in the amount of intravenous analgesics.

Age bias

Differences in the provision of adequate analgesia in the ED exist among different age groups, particularly, among the elderly. In 1996, Jones and colleagues proposed that age could be a risk factor for delivering inadequate analgesia in the ED.²⁹ This retrospective evaluation of 231 patients found that 66% of elderly patients received analgesia compared to 80% of their younger counterparts. Additionally, elderly patients had a more prolonged waiting time for delivery of pain medications, had significant underdosing of pain medications, and received less opioid analgesics.

Lee and colleagues' pilot study hypothesized that elderly patients with acute undifferentiated abdominal pain who were female, non-Caucasian, or of advanced age would have delays in the administration of analgesia in comparison to their respective counterparts. However, the authors did not find an association between advancing age, gender, or ethnicity and delays in administration of analgesic agents in elderly patients presenting with abdominal pain.³⁰

Cavalieri and colleagues described several more factors that affect pain management of elderly patients in the ED: challenges to proper assessment of pain, under-reporting on the part of patients, atypical manifestations of pain in the elderly, a need for increased appreciation of the pharmacokinetic and pharmacodynamic changes associated with aging, and misconceptions about tolerance and addiction to opioids.³¹

Inadequate knowledge and formal training of ED physicians in acute pain management

The possible causes of the gaps in emergency physicians' clinical knowledge of pain management include a lack of formal teaching of pain management in medical schools, a reluctance of established physicians to change their practice patterns; and a prejudice toward the use of opioid analgesics in the ED. Pain management is a subject that is not taught within most medical school programs. The treatment of acute pain, especially in the ED, is almost never given a topic for formal teaching.³²

A study by Weinstein and colleagues surveyed medical students at the beginning of their first year and again while in their senior year with questions about pain management and treatment, attitudes toward pain as a presenting complaint and the use of opioid analgesics. They found that prejudice toward the use of narcotics had increased during their fourth year of medical school training. Overall, attitudes about

pain relief became more conservative over the course of medical school.³³ In 1999, a study by Jones showed that an introduction of the 4-hour pain management educational program for emergency medicine residents resulted in improvement in pain scores at 30 minutes from 65% in the pre-educational group to 92% in the post-educational group.³⁴

One of the most challenging obstacles to effective pain management in the ED or any clinical setting is changing the practice patterns of established physicians as opposed to newer physicians. A study conducted by Marquee and colleagues showed that physicians gave significantly lower pain ratings than patients both on arrival and at discharge. The extent of “miscalibration” was greater with expert than novice physicians.³⁵ Despite nationwide accepted practice guidelines on managing painful conditions such as chest pain and back pain, studies by Lewis³⁶ and Di Iorio³⁷ have shown very poor compliance with these guidelines and minimal changes in practice behavior among working physicians.

Opiophobia in emergency department

Opiophobia is the prejudice against the use and prescription of opioid analgesics. The result of this is that patients do not receive proper analgesics, or receive them in inadequate dosages and they leave the ED in pain and without prescriptions for opioid analgesics. Many working ED physicians have significant opiophobia, display lack of proper knowledge about opioid analgesics, and have negative views about patients requiring opioids. Possible causes include, but are not limited to: regulatory and licensing concerns; suspicion of “drug-seeking” behavior; concerns of addiction or dependence; lack of follow up or continuity of care; and fear of masking symptoms of an acute illness. In 2003, Neighbor and colleagues, in a retrospective cohort of 540 charts at a level I trauma center, showed that a total of 258 (47.8%) patients received intravenous opioid analgesia within three hours of ED arrival.³⁸ Kelly and colleagues showed that by enabling nurses to initiate opioid analgesia prior to medical assessment by physicians for selected painful conditions, the median time to first analgesic dose decreased from 57 minutes to 31 minutes.³⁹ In 2007, Bijur and colleagues showed that intravenous morphine at 0.1 mg/kg was not effective for controlling severe acute pain in a majority of patients. The results showed that of 119 patients, 67% of the patients who received intravenous morphine at 0.1 mg/kg reported a less than 50% decrease in pain. The median age was 42 years and mean pain score was 10.⁴⁰

In a retrospective review of the charts of 582 children, Goldman and colleagues showed that 53 patients (9%) received opioid analgesia and 77% of the opioids given were below the recommended dose.⁴¹

One of the most controversial issues of opioid use in the ED has been the administration of opioids to patients with severe abdominal pain and, particularly, in cases of suspected acute appendicitis. In 2002, Kim and colleagues conducted a randomized double-blinded placebo controlled trial evaluating the effect of intravenous morphine administration on pain reduction, physical examination, and an accuracy of diagnosis in children presenting with acute abdominal pain.⁴² The results showed a significant reduction of pain score between the two groups without clinically significant changes in diagnostic accuracy. Children with “surgical” abdomens continued to have persistent tenderness to palpation and percussion. Gallagher and colleagues showed that parenteral analgesia greatly reduced pain score without sacrificing diagnostic accuracy, which was approximately 85% in both the morphine and placebo group.⁴³ In a matched case-control study by Frei and colleagues⁴⁴ who investigated the association between early use of analgesia and delay in treatment of appendicitis, results showed that in comparing cases and controls for early opiate use (26/103 cases, 24/103 controls), no association was found with delayed treatment (odds ratio, 1.11; $P = 0.745$; 95% CI, 0.59–3.89).

The dilemma of prescribing opioid analgesics to children deserves special consideration. Emergency physicians fear that opioid analgesics will produce uncontrollable complications, obscure important findings and impede their ability to secure a diagnosis. Thus, out of 582 children presenting to the ED with chief complaint of severe abdominal pain, 53 patients (9%) received opioid analgesia and 77% of the opioids given were below the recommended dose.⁴¹ In another analysis of 108 children with acute abdominal pain, where two groups were receiving either morphine or placebo, no differences were found between groups in the diagnoses of appendicitis or perforated appendicitis or the number of children who were initially observed and then went for laparotomy. Thus, morphine can effectively reduce the intensity of pain among children with acute abdominal pain and does not seem to impede the diagnosis of appendicitis.⁴⁵ In surveying 1441 members of the American Academy of Pediatrics in the Section of Emergency Medicine and the American Pediatric Surgeons Association, more pediatric emergency physicians were willing to provide analgesia before definitive diagnosis was established.⁴⁶

In conclusion, it is imperative to ED physicians to be the experts in pain management and they must do everything in their power to alleviate human suffering by treating patients' acute pain. However, they also need to be familiar with the assessment of aberrant behaviors in patients with chronic pain, and understand the concept of balance in the risk and benefit.

The emergency department environment

In 2000, Chisholm and colleagues conducted an observational study in three different EDs evaluating the numbers of interruptions and break-in tasks that take place in the ED. The results showed that over a 3-hour period, emergency physicians dealt with a mean of 30 interruptions and 20 break-in tasks that were forcing them to deviate from their current activities.⁴⁷

In 2006, Hwang and colleagues, in a retrospective review of the ED records, evaluated the effect of ED crowding on assessment and treatment of pain in older adults with hip fractures.⁴⁸ Results showed that mean time to pain assessment was 40 minutes, time to treatment was 141 minutes, and mean delay to treatment was 122 minutes.

Pines and Hollander (2007) performed a retrospective cohort study evaluating the impact of the ED crowding on delays in treatment and non-treatment for patients with severe pain. Results showed that 49% of the patients received pain medication and of those patients, who received analgesia, 59% experienced delays in treatment from triage and 20% experienced delays from time of room placement.⁴⁹

Fosnocht and colleagues designed a study, which evaluated the ability of a triage pain protocol to improve frequency and time to delivery of analgesia for musculoskeletal injuries in the ED. The authors showed that the time to medication administration was reduced from 76 minutes to 40 minutes after the implementation of the protocol and the number of patients receiving analgesia increased from 45% to 70%.⁵⁰

In 2000, Beel and colleagues evaluated the number of patients presenting with acute fractures who actually wanted pain medication given in the ED. Eighty-eight percent of the patients wanted pain medication given in the ED and 77% actually received it.⁵¹

The emergency department culture

Cultural clashes are common in the ED among the patients and providers and among patients and their families. Provider inability to communicate with patients in their native languages, patient unfamiliarity with the health care system in the US, lack of insurance, and intolerance to painfully long waiting

times make patients so frustrated that even the theoretical possibility of timely, efficient, and adequate pain management seems unrealistic. In addition, stereotyping and prejudice on the part of the ER physicians and mistrust and dissatisfaction on the part of the patients, when combined, create formidable obstacles to successful treatment of pain in the ED.

Conclusion

The ED is a primary setting for medical care for many patients presenting with traumatic and nontraumatic painful conditions. In providing effective care to the populations served by the ED, we have a great responsibility to relieve pain by all possible appropriate means in a timely, efficient and effective manner. This is the greatest service a physician can provide to a patient. Albert Schweitzer once said, "We must all die. But that I can save a person from days of torture that is what I feel is my great and ever-new privilege. Pain is a more terrible lord of mankind than even death itself."

Problems of pain management in the ED extend far beyond a single ED, or even a single country: these are global problems. However, until each physician assumes leadership in pain management, the issues of "oligoanalgesia" will persist.⁵² Improvements in pain assessment and documentation, progress in knowledge and research, changes in attitude toward "opiophobia", recognition of ethnic, racial, and age differences in patients with pain, will all contribute to effective management of pain in the ED. ED physicians must recognize that pain is a true emergency and treat it as such.

Disclosure

The authors report no conflicts of interest in this work.

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