Factors Associated with Poor Analgesia When Using Intravenous Opioids for Acute Pain

O'Connor AB, Zwemer FL, Hays DP, Feng C. Outcomes after intravenous opioids in emergency patients: a prospective cohort analysis. Acad Emerg Med 2009;16:477–87.

Study Overview

Objective. To assess outcomes following administration of intravenous (IV) opioids in the emergency department (ED) and to identify clinical factors associated with poorer analgesic control.

Design. Prospective, observational cohort study.

Setting and participants. The study was conducted in an urban academic ED between the hours of 8 AM and midnight from July 2004 to November 2006. Inclusion criteria were age ≥ 18 years and receiving IV morphine or hydromorphone as the initial analgesic medication. Patients identified more than 2 hours after the opioid was administered were excluded. Other exclusion criteria were prior or simultaneous administration of any analgesic medication during the ED encounter or via emergency medical services, cognitive impairment that limited informed consent, unstable vital signs, or inability to speak English.

Study protocol. Trained research assistants screened triage diagnoses for potentially painful diagnoses and monitored potential subjects for IV opioid orders. Enrolled patients were interviewed before and 1–2 hours after analgesics and asked to score their pain on a verbal 0–10 scale with 0 = "no pain" and 10 = "worst pain possible." In the postanalgesic interview they were also asked if they desired additional analgesia and to rate their pain relief (1–5 scale) and treatment satisfaction (1–6 scale). The providers who ordered the opioid were asked to rate their concern about suspected "drug-seeking behavior" and "patient stability" using a 1–5 Likert scale with 1 = "not concerned" and 5 = "very concerned." A detailed medical record review was completed after the subject was discharged from the ED.

Main outcome measures. Poor analgesia, defined as (1) < 50% reduction of the initial pain score, and (2) postanalgesic pain score ≥ 7. An additional outcome measure was the development of opioid-related side effects, judged to be present if reported by the patient or nurse or documented in the chart (presence of naloxone orders, respiratory rate < 10/minute, systolic blood pressure < 90 mm Hg, or oxygen saturation < 90% during the 4 hours after IV initial opioid administration).

Results. 57% of the 691 patients studied failed to achieve a 50% reduction of their initial pain score, 36% had a postanalgesic pain score ≥ 7, 48% desired additional analgesia, and 23% had opioid-related side effects. Factors associated with poor analgesia included use of long-acting opioids at home, provider concern for drug-seeking behavior, and increasing age. An initial pain score of 10 was associated with a postanalgesic pain score ≥ 7. Black patients were less likely to achieve a 50% reduction of their initial pain score despite receiving similar initial and total equianalgesic doses. No risk factors evaluated in this study were associated with greater risk of opioid side effects.

Conclusion. ED patients who are older, black, already taking long-acting opioids, suspected of drug-seeking behavior, and who have higher initial pain scores are at risk of poorer analgesic control.

Commentary

Acute pain is one of the most common presenting complaints in the ED setting [1–3], yet despite the movement to increase quality of pain assessment and treatment, pain care continues to be inconsistent and inadequate in the ED [4–6]. Inadequate pain control has been attributed to the clinician paradigm of focusing on diagnosis as a priority instead of symptom treatment, lack of pain relief training, inadequate pain assessment, misconceptions, reluctance to prescribe opiates, and the widening "gap between deepening knowledge about pain and clinically adequate treatment [7]." Although surveys of ED patients indicate they expect complete relief of their pain [8], there are barriers that may preclude the ability to achieve this, including patient-related differences. These factors coupled with the emphasis of rapid diagnosis and treatment, ongoing professional perceptions of the dangers of opiate use or drug abuse, concerns about side effects, and the nursing and physician time required to rapidly and effectively titrate analgesia may limit the ability to provide

or improve the quality of pain care in the ED.

This study by O'Connor et al demonstrates that in a patient population initially treated with only IV opioids, patient characteristics and clinician impressions are risk factors associated with difficulty in ultimately achieving pain control. Despite receiving similar initial and total equianalgesic dosages, patient race, age, initial pain scores, history of using long-acting opioids and clinician suspicion of the patient feigning symptoms to obtain narcotics are associated with the inability to reduce pain scores sufficiently. Awareness of these factors should be considered markers for increased risk of analgesic failure and thus prompt aggressive pain management efforts and frequent patient monitoring. The initial choice of opioid (versus nonopoiod) analgesic medication for the treatment of acute pain indicates that a clinician is making a strong attempt to relieve pain. This study found that even with the initial use of only opioid analgesia, many patients do not have a significant reduction in reported pain (reduction of follow-up pain scores to < 50% of initial scores). The use of opioid analgesic medication alone may not suffice in relieving acute pain, and alternate strategies (eg, prompt follow-up, monitored titration of medications) should be studied.

Of the factors associated with poor analgesic control, only physician concern for drug-seeking behavior can be modified to improve pain care and clinical practice. The health care system will continue to encounter "drug-seeking" patients, including those who abuse drugs for recreational purposes, addicts who are unable to control their dependence, and pseudoaddicts who have chronic pain that has been inadequately managed. Despite drug-seeking behaviors that may elicit suspicion, many of these patients have genuine pain. The onus is on the clinician to first manage the pain effectively and then to refer drug-seeking patients to appropriate psychosocial, rehabilitation, or chronic pain care treatment.

Limitations of the study include the single institution setting whereby findings may not generalize to other settings. Additionally, it is not known if the results observed in this study may be secondary to relatively low opioid doses ordered and administered to this cohort. While not the objective of this study, future research to determine optimal opioid dosing strategies in ED patients would be warranted.

Applications for Clinical Practice

Awareness of risk factors associated with the inability to reduce pain scores significantly may alert physicians to manage pain more aggressively. These factors include suspicion for drug-seeking behavior, older age, black race, already taking long-acting opioids, and having high initial pain scores.

—Review by Ula Hwang, MD, MPH

References

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