

Original Contributions

LONGITUDINAL TRENDS IN THE TREATMENT OF ABDOMINAL PAIN IN AN ACADEMIC EMERGENCY DEPARTMENT

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Abstract—Background: Abdominal pain is a top chief complaint of patients presenting to Emergency Departments (ED). Historically, uncertainty surrounded correct management. Evidence has shown adequate analgesia does not obscure the diagnosis, making it the standard of care. **Objective:** We sought to evaluate trends in treatment of abdominal pain in an academic ED during a 10-year period. **Methods:** We prospectively evaluated a convenience sample of patients in an urban academic tertiary care hospital ED from September 2000 through April 2010. Adult patients presenting with a chief complaint of abdominal pain were included in this study. Analgesic administration rates and times, pain scores, and patient satisfaction at discharge were analyzed to evaluate trends by year. **Results:** There were 2,646 patients presenting with abdominal pain who were enrolled during the study period. Rates of analgesic administration generally increased each year from 39.9% in 2000 to 65.5% in 2010 (p value for trend <0.001). Similarly, time to analgesic administration generally decreased by year, from 116 min in 2000 to 81 min in 2009 ($p < 0.001$). There was no improvement in mean pain scores at discharge by year ($p = 0.27$) and 48% of patients during the 10-year period still reported moderate to severe pain at discharge. Patient satisfaction with pain treatment increased from a score of 7.1 to 9.0 during the study period ($p < 0.005$), following the trend of increase in analgesic administration. **Conclusions:** In patients presenting to the ED with abdominal pain, analgesia administration increased and time to medication decreased during the 10-year period. Despite overall improvements in satisfaction, significant numbers of patients

presenting with abdominal pain still reported moderate to severe pain at discharge. © 2013 Elsevier Inc.

Keywords—abdominal pain; Emergency Department; analgesia

INTRODUCTION

Abdominal pain is the most common reason that patients 15 years and older visit the Emergency Department (ED) in the United States (1). There has been a 31.8% increase in the number of visits to the ED in which abdominal pain was the chief complaint for admission between 1999 and 2008, with numbers now totaling >7 million per year (2). Due to the sheer number of patients seen for abdominal pain, it is imperative that there be an understanding among Emergency Physicians of the growing body of conclusive clinical research advocating early and effective analgesia for abdominal pain relief. Treatment with analgesia, including narcotics, for patients presenting with abdominal pain does not alter or obscure accurate diagnosis in the ED (3). This understanding has overturned the old dogma that analgesia for pain management will alter the diagnostic process and result in negative outcomes for patients.

The standard of adequate analgesia for patients with abdominal pain marks a new era of clinical practice. The American College of Emergency Physicians

(ACEP) revised their policy in 2000 to include clinical practice guidelines that reflect this new understanding to improve patient care. The body of published evidence in the field is reflected in new clinical policy that advocates analgesia administration, including narcotics, for abdominal pain as safe and humane (4).

Abdominal pain has historically been undertreated. Oligoanalgesia is a problem that is found in the ED among all presenting chief complaints (5). Although this is not limited to treatment of acute abdominal pain, abdominal pain is unique because for decades customary clinical practices advised deliberate undertreatment of pain.

Changing an entrenched tradition is often a slow process. Physicians are now aware of this change in clinical practice. A survey of 97% of Emergency Physicians polled said they would give analgesia immediately after the initial patient evaluation (6). Another survey of Emergency Physicians found that 85% believed conservative administration of opioid analgesia would not alter or obscure clinical findings (7). Does actual practice in the ED reflect this attitude? Has the evidence changed our practice? We sought to evaluate trends in treatment of abdominal pain in an academic ED during a 10-year period.

METHODS

Study Design

We conducted a 10-year prospective, observational study of patients who presented with a chief complaint of abdominal pain between September 2000 and April 2010. Patients were included in an ongoing quality-improvement database maintained by the University of Utah Medical Center ED to evaluate the efficacy of the treatment of pain in the ED. The study was approved by the University of Utah Institutional Review Board.

Setting

Patients were enrolled in the University of Utah Medical Center ED, an urban, academic tertiary care hospital ED with an annual volume of 39,000 patient visits per year. We enrolled a convenience sample of patients, collecting data only when trained research assistants were available. Patient information was collected 7 days a week, between 8 AM and midnight, during the 10-year period.

Staffing in the ED remained fairly consistent during the study period, and patient volumes averaged approximately 39,000 patients per year. The ED is staffed by two attending physicians for 16 h per day and a single attending physician during the remaining 8 h.

Additionally, a single mid-level provider (i.e., physician assistant or nurse practitioner) is present during 12 h of the day. As an academic center, the ED also has a regular presence of medical students and residents. Nursing and mid-level provider staffing remained constant throughout the study period. In addition, throughout the study period, nurses were allowed to administer pain medication on patient arrival without an order from the attending physician, and there were no changes to this policy during the study period.

In July 2005, the ED enrolled its first class of Emergency Medicine residents, which then reached full capacity of three classes of residents in July 2007. Once at full resident capacity, the ED typically had one Emergency Resident present at a time. In July 2008, the ED added an additional attending physician shift in triage, in which an attending is present in the triage area 10 h per day to perform initial patient evaluation on lower-acuity patients, to treat and discharge very-low-acuity patients, to make primary triage decisions, and to care for patients with prolonged wait times. Finally, although the ED had used handwritten orders throughout the majority of the study period, the ED transitioned to computerized physician order entry (CPOE) in November 2009.

Selection of Participants

Adult patients admitted with abdominal pain as the chief complaint were included in the study. Exclusion criteria included patients under the age of 18 years, patients with language or other comprehension barriers, any patient meeting injury criteria for designation as Trauma Team activation response, any patient with a critical illness, prisoners, and patients electing not to participate for any reason.

Methods of Measurement

All patients were given a questionnaire in which they were asked to quantify their abdominal pain on a scale of 0 to 10, with 0 signifying “no pain” and 10 the “worst possible pain.” They were also asked to describe their pain on a verbal pain scale as none, mild, moderate, or severe. Patients gave this information at the time of admittance and again at discharge. Time to analgesia and amount and type of analgesia were recorded from nursing records. Patient satisfaction of overall ED experience was also elicited in a similar fashion on a 10-point scale, with 0 meaning “not satisfied with experience” and 10 meaning “most satisfied with experience.” Satisfaction scores were recorded at patient discharge. Demographic information, which included age, sex, and ethnic origin of patients, was also recorded.

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