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Original Contributions

IMPACT OF AN OPIOID PRESCRIBING GUIDELINE IN THE ACUTE CARE SETTING

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□ **Abstract—Background: Death from opioid abuse is a major public health issue. The death rate associated with opioid overdose nearly quadrupled from 1999 to 2008. Acute care settings are a major source of opioid prescriptions, often for minor conditions and chronic noncancer pain. Objective: Our aim was to determine whether a voluntary opioid prescribing guideline reduces the proportion of patients prescribed opioids for minor and chronic conditions. Methods: A retrospective chart review was performed on records of adult emergency department visits from January 2012 to July 2014 for dental, neck, back, or unspecified chronic pain, and the proportion of patients receiving opioid prescriptions at discharge was compared before and after the guideline. Attending emergency physicians were surveyed on their perceptions regarding the impact of the guideline on prescribing patterns, patient satisfaction, and physician–patient interactions. Results: In our sample of 13,187 patient visits, there was a significant ($p < 0.001$) and sustained decrease in rates of opioid prescriptions for dental, neck, back, or unspecified chronic pain. The rate of opioid prescribing decreased from 52.7% before the guideline to 29.8% immediately after its introduction, and to 33.8% at an interval of 12 to 18 months later. The decrease in opioid prescriptions was observed in all of these diagnosis groups and in all age groups. All 31 eligible prescribing physicians completed a survey. The opioid prescribing guideline was supported by 100% of survey respondents. Conclusions: An opioid prescribing guideline significantly decreased the rates at which opioids were prescribed for minor and chronic complaints in an acute care setting.** © 2016 Elsevier Inc.

□ **Keywords—narcotic; opioid abuse; emergency department; overdose; prescribing guideline**

INTRODUCTION

There is a crisis regarding the abuse of prescription drug opioids in the United States (1,2). In 2010, nearly 1 in 20 persons over the age of 12 years used opioids nonmedically (1). Nearly three-quarters (73.8%) of prescription drug-related deaths in 2008 involved opioids. The United States (US) death rate from prescription opioid overdose now exceeds the combined death rates from heroin and cocaine. From 1999 to 2008, the death rate associated with opioid overdose nearly quadrupled (2).

Emergency departments (EDs) are a major source of prescription opioids. A 2009 study demonstrated that emergency medicine was one of the top five specialties prescribing opioids to every age group under 40 years (3). From 2001 to 2010, the percentage of ED visits that resulted in opioids being prescribed increased from 20.8% to 31.0% (4). It is believed that the increased regulatory attention to the treatment of pain as a "vital sign" has contributed to the rise in the prescribing of opioids for less serious conditions (5). For example, according to data from the National Hospital Ambulatory Medical Care Survey, opioids were prescribed at 59.4% of ED visits for nontraumatic dental conditions from 2003 to 2007 (6).

The US Department of Health and Human Services identifies death from opioid abuse as a major public health issue, and recommends the synthesis of pain management guidelines and the creation of clinical decision support tools (7). Some medical organizations have

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recently created guidelines for prescribing opioids to maximize safety and avoid misuse and diversion (8,9). The impact of these guidelines has not been studied in the acute care setting. The purpose of our study is to describe the impact of an opioid prescribing guideline in two large affiliated urban emergency departments. We hypothesized that the rate at which opioids were prescribed in the emergency department for dental, neck/back, and chronic pain would decrease after adoption of an opioid prescribing guideline. We also hypothesized that physicians would support the use of an opioid prescribing guideline.

MATERIALS AND METHODS

Study Design

This retrospective observational study used data from two hospital sites in Philadelphia. One site is a tertiary care academic medical center with an annual emergency department census of > 75,000 visits. The other is an affiliated community hospital with an annual emergency department census of approximately 45,000. The emergency physicians at these sites are all members of a university practice plan.

An opioid prescribing guideline (Appendix A) was developed using an existing medical society guideline (9). It was submitted for faculty consensus review and adopted at a meeting of the emergency medicine faculty. It was then electronically disseminated to all emergency medicine attendings, residents, and physician assistants on January 3, 2013. Hard copies and electronic copies were available in the emergency department. There was no individual or group feedback regarding the use of the guideline during the study period.

We compared the rate of opioid prescriptions for specific complaints before and after adoption of the guideline. The study was approved by the Temple University Institutional Review Board.

Study Protocol

Retrospective chart review was performed by querying the electronic medical record for all visits by patients aged 18 years or older who were discharged from the emergency department during three different time periods with any of the following coded discharge diagnoses: dental abscess, dental caries, dental pain, dentalgia, tooth pain, back pain, back pain with sciatica, sciatica, acute back pain, acute low back pain, acute mid back pain, acute upper back pain, chronic back pain, chronic low back pain, chronic mid back pain, chronic upper back pain, cervical radiculopathy, lumbar radiculopathy, neck pain, chronic neck pain, and pain syndrome-chronic. The three time periods chosen were 6 to 12 months before adoption of the guideline (January to July 2012), the 6 months immediately after adoption of the guideline (January to July 2013), and 12 to 18 months after adoption of the guideline (January to July 2014).

Medications prescribed at the time of discharge were reviewed to identify patients who were prescribed any of the following opioids or opioid-analgesic combinations: oxycodone, oxycodone-acetaminophen, hydrocodone, hydrocodone-acetaminophen, hydrocodone-ibuprofen, acetaminophen with codeine (#3 or #4), and hydromorphone. We queried the data using brand names for these compounds as well. These represent the most commonly prescribed opioid analgesics in our emergency departments. Extended-release formulations and more recent market entrants with limited market shares (e.g., oxymorphone and tapentadol) are rarely, if ever, prescribed from our emergency departments and thus were not included. Tramadol was not included in our analysis as it became a scheduled medication after the study period (on August 18, 2014).

In addition to collecting the prescription data, a survey was administered to the faculty emergency medicine physicians who were practicing at one or both emergency departments during each of the time periods studied. The survey could be completed anonymously online. They were asked to rate their agreement with several statements regarding changes in opioid prescribing and perceptions of patient interactions.

Outcomes

The primary outcome was the proportion of patients seen for dental, neck/back, or chronic pain that were prescribed an opioid upon discharge from the emergency department. Secondary outcomes were physician attitudes regarding whether the guideline had changed prescribing practices, the effect of the guideline on physician−patient interactions, and overall level of support from emergency physicians for the implementation of the guideline.

Statistical Analysis

Statistical analyses were performed with the use of STATA software, version 13 (StataCorp LP, College Station, Texas). Two-sided χ^2 tests with an a priori level of significance of $p \leq 0.05$ were considered to indicate statistical significance. All reported p values are two-tailed and have not been adjusted for multiple comparisons. Multinomial logistic regression tests were used to calculate relative risk of being prescribed an opioid and corresponding 95% confidence intervals. The results from the survey are reported by combining agree and