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Original Contributions

EXTENT AND IMPACT OF OPIOID PRESCRIBING FOR ACUTE OCCUPATIONAL LOW BACK PAIN IN THE EMERGENCY DEPARTMENT

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☐ **Abstract—Background: Initial management of acute occupational low back pain (AOLBP) commonly occurs in the emergency department (ED), where opioid prescribing can vary from the clinical guidelines that recommend limited use. Objective: The objective of this study was to explore how opioids are prescribed in the ED and the impact on work disability and other outcomes in AOLBP. Methods: A retrospective cohort study was conducted. All acute compensable lost-time LBP cases seen initially in the ED with a date of injury from January 1, 2009 to December 31, 2011 were identified within a nationally representative Workers' Compensation dataset. Multivariate models estimated the effect of early opioids (received within 2 days of ED visit) on disability duration, long-term opioid use, total medical costs, and subsequent surgeries. Results: Of the cohort (N = 2887), 12% received early opioids; controlling for severity, this was significantly associated with long-term opioid use (adjusted risk ratio = 1.29; 95% confidence interval 1.05–1.58) and increased total medical costs for those in the highest opioid dosage quartile, but not associated with disability duration or subsequent low back surgery. Conclusions: Early opioid prescribing in the ED for uncomplicated AOLBP increased long-term opioid use and medical costs, and should be discouraged, as opioid use for low back pain has been associated with a variety of adverse outcomes. However, ED providers may be becoming more compliant with current LBP treatment guidelines.** © 2016 Elsevier Inc.

☐ **Keywords—opioid adverse effects; emergency treatment; low back pain**

INTRODUCTION

Low back pain (LBP) is a frequent consequence of injuries at work in the United States; in 2011, of the 1.18 million nonfatal occupational injuries and illnesses in the United States requiring days off from work, 13.6% involved the back (1).

Initial management of acute occupational LBP (AOLBP) commonly occurs in the emergency department (ED) (2). Evidence-based clinical guidelines recommend conservative management of acute uncomplicated LBP injuries, with the use of acetaminophen or nonsteroidal anti-inflammatory drugs as first-line analgesic medications, and opioid use only in cases of severe pain refractory to these medications (3,4). Yet, recent analyses of opioid-prescribing patterns report an increase in opioid prescriptions and a decrease in the use of first-line analgesic medications for acute LBP management (5). A nationally representative study of all ED visits throughout the United States between 2002 and 2006 found that 61% of medications administered or prescribed at discharge were opioids (6). Furthermore, from 1997 to 2009, the likelihood of receiving an opioid medication in the ED for back pain increased at a rate of 35% every 5 years, although the rate of diagnosis of back pain increased by only 12% during that time (7). These trends are a concern, as opioid use for LBP is consistently associated with worse outcomes, including longer work disability, higher Workers' Compensation (WC) claims

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cost, and an increase in additional medical services, such as magnetic resonance imaging (MRI)/computed tomography scans, physical therapy, x-ray studies, spinal injection, and hospitalizations (8–11).

Although evidence-based management of AOLBP has been shown to result in better outcomes, including faster return to work and reduced recurrence of symptoms, studies reveal that emergency medicine providers, at times, deviate from these clinical guidelines (5,12–16). When given a standard clinical back pain scenario, emergency physicians' opioid-prescribing decisions were highly variable, although practices may have changed considerably since this research was conducted (17).

Importance

Previous research on emergency physicians' opioid-prescribing behaviors has focused on the influence of patient characteristics and medical history (18–22). Few studies have examined the consequences of early opioid use for AOLBP injuries, and they have shown somewhat different results (13,23). In addition, none have focused on ED treatment for AOLBP. Webster et al. found that early opioid use, defined as opioids received within 15 days post onset of AOLBP, resulted in a dose-dependent increase in work disability duration across a broad sample of WC patients (23). In contrast, Franklin et al. found that early opioids, defined as opioids received within 6 weeks post onset of AOLBP, increased work disability at 1 year, but they did not find a dose-dependent effect (13). This discrepancy may be reflective of differences in the definition of "early opioid." Given the evidence that slightly more than half of AOLBP patients who obtain opioid analgesics early on receive their prescription during the first medical visit, it is important to explore the impact of early opioid use employing a more narrow time definition (13).

Goals of This Investigation

The purpose of this study was to explore the impact of ED opioid-prescribing practice during the initial evaluation of AOLBP on work disability duration, long-term opioid use, total medical costs, and subsequent low back surgeries. It was hypothesized that patients who received an opioid prescription during their initial ED evaluation would have worse outcomes, after controlling for severity and other factors.

METHODS

Study Design and Setting

WC coverage is a state-mandated insurance program that covers lost wages and medical treatment resulting from an employee's work-related injury or illness. WC provides first-party, total coverage for medical care of an occupational injury or work-disabling condition without any co-pays. WC is intended to be the only payer for WC injuries, regardless of the injured worker's private health insurance coverage (24). The primary purpose of the administrative data source used for this study is for payment of WC claims. Claims information is collected from the employer or employee reporting the claim. Medical treatment information is collected from the treating health care professional's bills for services.

The current study, using a retrospective cohort design, was conducted utilizing a nationally representative WC administrative data source from a large WC insurance carrier. This dataset was composed of claims data from 50 states, and included claim-level information, such as the claimant's jurisdiction state, body part, and nature of injury, along with complete capture of all related medical and indemnity services for each claim (23). All diagnostic and care information for these medical services are sourced directly from physician/provider bills, which includes the dates of service, primary and secondary diagnostic codes (International Classification of Disease [ICD-9]) and procedure codes (Physician's Clinical Procedural Terminology [CPT]) for each service, as well as the drug product information as identified by its unique National Drug Code (NDC), strength/dose, and number of pills from pharmacy bills (25,26). The NDC is a unique, three-segment number that serves as a universal product identifier for each drug that is manufactured, prepared, propagated, compounded, or processed for human consumption in the United States (27).

Selection of Participants

All accepted occupational LBP cases with injury dates from January 1, 2009 to December 31, 2011 were initially selected. LBP cases were identified using body part (e.g., lumbar, sacrum, coccyx, and sacroiliac) and nature of injury codes (e.g., contusion, inflammation, sprain, strain, and spasm). For each case, demographic information (e.g., age, sex, and job tenure) along with each paid medical and indemnity service up to 1 year after the date of injury were extracted.

Zero-cost cases (i.e., no payment of medical or indemnity services) and medical-only cases (i.e., no paid temporary partial or temporary total disability days) were excluded, as these are generally less severe cases and therefore categorically different from lost-time cases with paid medical services. Cases with WC claims within the year before their injury date were excluded in order to capture only new-onset AOLBP cases, as