

Prospective Evaluation of an Opioid Reduction Protocol in Hand Surgery

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Purpose We investigated whether written guidelines for surgeons and educational handouts for patients regarding safe and effective opioid use after hand surgery could reduce prescription sizes while achieving high patient satisfaction and a low refill rate.

Methods All patients undergoing isolated carpal tunnel release or distal radius volar locked plating in a hand surgery group practice during a 6-month period were prospectively enrolled. Surgeons prescribed analgesics at their own discretion based on written guidelines. Patients received an educational handout regarding safe opioid use and disposal, a diary to record daily pain visual analog scale score and consumption of opioid and over-the-counter (OTC) analgesics, and a pain catastrophizing scale questionnaire. Collected data were compared with a retrospective cohort of the same surgeons, procedures, and period 1 year earlier.

Results In the carpal tunnel release group (121 patients), average prescription size was 10 opioid pills, compared with 22 in the prior year. Average consumption was 3 opioid pills, supplemented with 11 OTC pills. In the volar locked plating group (24 patients), average prescription size was 25 opioid pills, compared with 39 in the prior year. Average consumption was 16 opioid pills, supplemented with 20 OTC pills. Patient satisfaction was comparably high in both groups. Eight patients required opioid refills overall. Patients with pain catastrophizing scale greater than 10 used more than twice as many opioid pills. Of 109 patients with leftover opioids, 10 reported proper disposal.

Conclusions Written guidelines and educational handouts significantly reduced the number of prescribed opioid pills by 35% to 55% while achieving high patient satisfaction and a low refill rate. We recommend 5 to 10 opioid pills for carpal tunnel release and 20 to 30 for distal radius volar plating. Pain catastrophizing is associated with greater opioid consumption and may help target patients for additional support. Potential for opioid abuse and diversion may persist despite these interventions. (*J Hand Surg Am.* 2018; ■(■):■–■. Copyright © 2018 by the American Society for Surgery of the Hand. All rights reserved.)

Type of study/level of evidence Therapeutic II.

Key words Carpal tunnel, distal radius, opioids, prescriptions.



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PRESCRIPTION OPIOID ABUSE IS A national epidemic. From 1999 to 2015, the number of deaths involving overdoses of prescription opioids quadrupled to over 15,000 in 2015, reaching a total of over 183,000 during that period.¹ Surgeons may contribute to this problem when managing postoperative pain, sometimes overprescribing opioids with the intention of minimizing patient phone calls, refills, and even potential disciplinary action or litigation for inadequate pain control.^{2,3} In recent years this problem has worsened, with pain being declared the “fifth vital sign” by the Joint Commission in 2000,² and with an increasing focus on patient satisfaction.⁴

Overprescription of opioids by surgeons has been reported in diverse fields including hand surgery.^{5–8} Two recent studies demonstrated that two-thirds of the prescribed number of pain pills were left unconsumed by hand surgery patients.^{7,8} Fortunately, another study showed that hand surgeon prescribing behavior could be significantly improved by using written guidelines.⁹ However, of those 3 hand surgery studies, all had a variety of procedures, 2 had small numbers, and none tracked daily pain scores or daily consumption of opioids or over-the-counter (OTC) analgesics. We hoped to build on those studies by focusing on our most common soft tissue procedure (carpal tunnel release [CTR]) and bony procedure (distal radius volar locked plating [VLP]) and by collecting patient diaries for daily pain scores and pill consumption. In addition, pain catastrophizing has been associated with decreased satisfaction and greater patient-reported disability after CTR,¹⁰ as well as with increased pain and prolonged opioid use after orthopedic trauma surgery.¹¹ We therefore sought to include this factor in our assessments, considering its potential to affect opioid use.

Our hypothesis was that written guidelines for surgeons and educational handouts for patients regarding safe and effective opioid use after hand surgery could reduce prescription sizes while achieving high patient satisfaction with pain control and a low refill rate. We also hypothesized that patients with higher pain catastrophizing scores would consume more opioids.

MATERIALS AND METHODS

The study was conducted among our group of 4 Certificate of Added Qualifications—certified orthopedic hand surgeons in a hospital-based practice. All patients aged 18 years or older who were undergoing

isolated CTR or VLP for acute fracture from April, 2016 through September, 2016 were prospectively enrolled. Exclusion criteria included open fracture, chronic opioid use (defined as an active prescription on a patient medication list), or history of opioid abuse or pain syndrome. Surgeons prescribed analgesics at their own discretion based on written guidelines as follows: For CTR: aged 65 years or younger: 15 pills, 1 to 2 tablets by mouth every 4 to 6 hours as needed for pain; aged greater than 65 years: 10 pills, one tablet by mouth every 4 to 6 hours as needed for pain. For VLP: aged 65 years or younger: 30 pills, 1 to 2 tablets by mouth every 4 to 6 hours as needed for pain; aged greater than 65 years: 20 pills, one tablet by mouth every 4 to 6 hours as needed for pain.

All patients received an educational handout regarding recommendations for safe opioid use, prohibiting concurrent driving or alcohol intake, and encouraging OTC analgesic use when possible, as well as recommendations for disposal of unused opioids, including nearby drop box locations (Appendix A, available on the *Journal's* Web site at www.jhandsurg.org). Specific OTC recommendations included acetaminophen and ibuprofen, although patients were advised to respect contraindications from their primary care providers, such as against ibuprofen in the presence of renal impairment, gastrointestinal bleeding, cardiovascular disease, or anticoagulant therapy. In addition, patients in the distal radius fracture group were advised to minimize use of ibuprofen. We did not prescribe a bowel regimen or monitor for abdominal symptoms. All patients also received a diary with instructions to record maximum daily pain on a visual analog scale, with 0 representing none and 10 worst possible, and daily consumption of opioid and OTC analgesics, as well as a pain catastrophizing scale (PCS) questionnaire. The CTR was performed with mini-open technique under local anesthesia, with or without sedation. The VLP was performed with a flexor carpi radialis approach without supplemental incisions, under regional block, along with sedation or general anesthesia. Patients with CTR were allowed to replace the dressing with an adhesive bandage as needed, and patients with VLP were advised to keep the plaster splint and dressing intact. Patients in both groups were encouraged to elevate and exercise the fingers on the affected extremity.

At the first postoperative visit, scheduled 7 to 14 days after surgery, the diary and PCS questionnaire were collected. Patients were asked whether they were satisfied with the pain control. This was

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