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1 Opioids and Responsible Prescribing

Danielle Butto, DPM

Opioid Consumption following Foot and Ankle Surgery
Merrill HM, Dean DM, Mottla JL, Neufeld SK, Cuttica DJ, Buchanan MM.
Foot Ankle Int. 2018 Jun;39(6):649-656.

Objective—After the opioid epidemic moved from medical journals to national news, postoperative prescribing across medical specialties began to be investigated. The purposes of this study were to determine the number of opioids prescribed, consumed, and left over after foot and ankle surgery, and to investigate the efficacy of opioid medication at alleviating pain after surgery by measuring patient satisfaction.

Methods—Patients surgically managed over a three-month course (who met specific criteria) were surveyed at their first postoperative follow-up visit. Information gathered included patient gender, number of leftover prescription pills, satisfaction of pain control, and willingness to surrender leftover opioids to the Drug Enforcement Administration (DEA). Other data collected included utilization of peri-operative nerve block as well as type (bony versus non-bony) and anatomic region of the surgical procedure, which was collected upon review of medical records. Data analysis was done via retrospective methods. A sample size of 171 patients with an average age of 53.1 ± 15.5 years (range 18 to 81 years) were considered in the study.

Results—The average number of opioids consumed was 27.2 pills, from a range of zero to 70. On average, the number of short-acting versus long-acting opioids consumed was 21.4 and 9.2 pills, respectively. The majority of patients (73.5%) were satisfied with their postoperative pain management. It was determined that patients who underwent surgical procedures in the ankle or hindfoot took more long-acting opioids for pain management than other procedures ($p = .047$). No significant difference was noted in opioid consumption and quantity of prescriptions distributed between bony/osseous and non-bony procedures. In regard to leftover opioids, 63% of patients were willing to surrender them to the

DEA. It was noted that patients willing to surrender their left-over pills had both more short-acting ($p < .001$) and long-acting ($p = .015$) opioids remaining in their prescriptions than those unwilling to surrender them.

Conclusion—The majority of patients who underwent foot and ankle surgery had residual opioid pain medication in their prescriptions at their first pre-operative visit, and most were willing to surrender them to the DEA. It can be said that we can successfully treat patients' pain and decrease the number of opioid pills floating around communities by diminishing the quantity of opioid pills prescribed for pain management, as well as encouraging the disposal of left-over prescription opioid pain pills via DEA disposal centers.—*C.D. Kalabanka*

♦ Prescribing opioids after foot and ankle surgery has become common practice, and unfortunately the yearly number of abuse and overdose cases is continuously rising. This study aimed to determine the amount of opioids patients typically consume after procedures, to help guide physicians in the quantity they should prescribe post-surgery. The authors found that the mean number of opioid doses prescribed after surgery was 27.2, with most patients satisfied with their postoperative pain control. Not surprisingly, patients who underwent hindfoot or ankle surgery took more long-acting opioids. There was no significant difference found in opioid use between bony and non-bony procedures. Depending on your current prescribing habits, one may find that the number of postoperative narcotics given could be decreased. *—D. Butto, DPM*

Pain Management after Outpatient Foot and Ankle Surgery
Gupta A, Kumar K, Roberts MM, Sanders AE, Jones MT, Levine DS, O'Malley MJ, Drakos MC, Elliott AJ, Deland JT, Ellis SJ.
Foot Ankle Int. 2018 Feb;39(2):149-154.

Objective—Over the last two decades, for several reasons the consumption of prescribed opioids has increased significantly, leading to dependency, deaths and diversion. Regional anesthesia and popliteal block for foot and ankle surgery is proven to be effective for the patient's comfort as well as for reducing the need for postoperative narcotics. This study was done to give providers a baseline on the number of pills they should be prescribing and reduce the number of excess opioids discharged.

Methods—Initially, 107 patients were enrolled between November 2016 and January 2017. Twenty-three patients were excluded due to discrepancies or chronic medical conditions, and ultimately 84 patients took part in the study. The sedatives used for surgery were spinal neuraxial blockade and long-acting popliteal block. Postoperatively, 65 patients received 60 pills and 19 patents received 40 pills. In

addition, patients were given a three-day supply of as-needed ibuprofen, aspirin for DVT prophylaxis and a two-day supply of antiemetics. On postoperative days (PODs) three, seven, 14 and 56, patients were given surveys asking the number of pills consumed, the number of pills left over, if a refill was obtained, their pain level in the previous 24 hours and the reason for stopping the narcotic medications.

Results—Overall, the average amount of pills prescribed throughout the study was 55.5 and average consumption was 22.5. By POD 56, the mean pain score reduced from a 4 to a 1.8 on a scale of 0 to 10. Pain and the number of narcotics consumed were simultaneously decreased at every time-point. The number of patients consuming narcotics went down as well, with 55% taking them at POD three to only 17% consuming at POD 14. Only one patient consumed more than 60 pills. The most common reason for discontinuation of narcotics was no pain.

Conclusion—With the utilization of regional anesthesia, long-acting popliteal blocks, education and counseling for outpatient foot and ankle surgery, several benefits have been noted. These include reduction in the amount of opioids consumed, which can lead to reduction in misuse, addiction and side-effects of narcotics. Based on the study, it is recommended for providers to dispense 30 pills as a baseline and evaluate on an individual basis if the patient requires additional pills.—*T.M. Hasan*

♦ The Centers for Disease Control have declared the increasing use of narcotic pain medications and the associated morbidity and mortality an epidemic. For operative patients, there has been an increase in the number of opioids prescribed, even in low-risk surgery. There are few published guidelines to aid providers in determining how many pills patients should be prescribed. The aim of this study was to evaluate the number of opioids consumed postoperatively after outpatient foot and ankle surgery. Their patients also received standard regional anesthesia and a lower extremity block. The results showed that the mean number of pills prescribed was 55.5, while the mean number of pills consumed was 22.5. Flaws of this study include the fact that the type of opioid given was not documented. If a popliteal block is available, it may aid in decreasing the amount of narcotics needed postoperatively.—*D. Butto, DPM*

Opioid-Prescribing Guidelines for Common Surgical Procedures: An Expert Panel Consensus

Overton HN, Hanna MN, Bruhn WE, Hutfless S, Bicket MC, Makary MA, Opioids after Surgery Workgroup.
J Am Coll Surg. 2018 Oct;227(4):411-418.

Objective—Opioid use has been attributed to over 60% of total drug overdoses in the United States with half of these overdoses from prescribed medications.

One in 16 patients who are prescribed an opioid for postoperative pain relief become long-term users. Moreso, there is wide variation (0 to 50 opioid tablets) in the prescribing of opioids at discharge after standardized procedures, such as an open reduction and internal fixation of the ankle. The widespread prescribing of opioids in excess to manage minimal or no pain warrant efforts to reduce unnecessary opioid exposure. In the Centers for Disease Control and Prevention Guidelines for Prescribing Opioids, it is recommended that for "acute" pain, one should not exceed a seven-day supply with no mention of dosage. State governments and large payers have introduced a "one-size-fits-all" model with limits on opioids prescribed after surgical procedures to mitigate unnecessary opioid use. These models necessitate an urgent need for procedure-specific multidisciplinary opioid prescribing guidelines, as none exist. To address this issue, a panel of various healthcare specialists convened to describe best practices for prescribing opioids.

Methods—An expert panel of 30 multidisciplinary clinicians from six groups (surgeons, pain specialists, outpatient surgical nurse practitioners, surgical residents, patients who experienced one of the 20 procedures themselves, and pharmacists, all from the Johns Hopkins Health System) were chosen based on expertise and experience with a procedure. The 20 procedures chosen were common, and had minimal variation in how they are performed. Panelists were instructed to create best practices for outpatient post-surgical opioid prescribing (oxycodone 5 mg oral equivalent) for an average, opioid-naïve adult with no chronic pain, who experienced an uncomplicated procedure. The panel voted on finalized guidelines after two weeks.

Results—For all 20 surgical procedures reviewed, it was possible for non-opioid pain medication only to be prescribed to patients. It was further stated that the minimum number of opioids should be 0 for these surgeries. However, pain from orthopaedic surgeries such as arthroscopic anterior/posterior cruciate ligament repair, arthroscopic rotator cuff repair, open reduction and internal fixation of the ankle may not be managed by non-opioids alone (16 to 20 tablets recommended). If an opioid was prescribed for one of the 20 procedures, an average of 12.5 tablets were recommended (range 0 to 20). One to 15 opioid tablets were recommended for 55% of the procedures.

Conclusion—The study posed three recommendations: maximizing non-opioid analgesics with detailed administration instructions given to patients, prescribing a minimum of zero tablets depending on the procedure and patient, and not exceeding 20 tablets as a maximum. With nearly 240 million opioid prescriptions dispensed yearly in the United States, best practice guidelines that limit unwarranted prescribing variation in opioid-naïve adults after surgery need to be implemented in order to minimize the potential for abuse.—*A.A. Qadri*

♦ One in every 16 patients become long-term opioid users when prescribed after surgery. There are no formal multidisciplinary guidelines for opioid prescribing that are procedure-specific. The aim of this study was to formulate best practice guidelines for outpatient opioid prescribing at the time of discharge. In regard to podiatric-specific procedures, the authors only made recommendations on ORIF of the ankle, for which they recommend a maximum of 20 opioid doses.—*D. Butto, DPM*

Development of a Multimodal Analgesia Protocol for Peri-Operative Acute Pain Management for Lower Limb Amputation

De Jong R, Shysh AJ.
Pain Res Manag. 2018 Jun 3;2018:5237040.

Objective—Unlike for other surgical procedures, multimodal analgesia for lower limb amputations (LLAs) in patients with vascular pathologies has yet to be reported. There are multiple sources for acute and chronic postoperative pain among these patients, such as phantom limb pain (PLP) and chronic ischemic limb pain. Acute pain associated with LLA may interfere with postoperative rehabilitation, lifestyle, psychological well-being and function, and may progress to chronic pain. Thus, it is valuable to effectively treat the multiple and complex pain pathways on various levels. In this review article, a multimodal analgesia protocol was proposed for postoperative pain management which considers common comorbidities among this patient population.

Discussion—A peri-operative multimodal analgesia protocol for acute pain management of LLA procedures was proposed: In the pre-operative phase, optimize an analgesic regime based on the patient's condition. In the intra-operative phase, create a continuous peripheral nerve block catheter (CPNB) to form an "epidural stump," at either the posterior tibial or sciatic nerve, to give bolus doses of local anesthetic into the transected nerve sheath. In the postoperative phase day zero to one, residual limb pain (RLP) is controlled while maintaining an analgesic regime and preventing opioid withdrawal with use of the CPNB infusion, opioids, non-opioid analgesics, and adjuvants. On days two to three, adjust aggressive RLP and PLP treatment as needed. On days three to four, coordinate pain management with increased activity. On day five, discontinue CPNB while weaning the patient off of analgesics and adjuvants. On days six and onward, manage any existing PLP and persistent pain at the lowest possible dosages.

Conclusion—The pathophysiology mechanisms for the pain phenomena occurring post-amputation are still not completely understood. Implementing a multimodal analgesia protocol may allow healthcare practitioners to address pain management at multiple complex pathways and to best improve recovery. —*C.H. Duong*

♦ Multimodal anesthesia includes a combination of regional anesthesia, opioids and non-opioid systemic analgesics along with other pharmacologic adjuvants. This approach is not commonly used in amputation patients, who often suffer from phantom limb pain. The pathophysiology that underlies post-amputation pain is not fully understood. In the sensate patient undergoing amputation (whether due to infection or trauma) it is important to control their pain so that they may progress and rehabilitate appropriately. This article serves as a guide to this pain control. The authors recommend regional anesthesia, perineural anesthesia, non-opioid analgesics such as NSAIDs, and adjuvants such as NMDA receptor antagonists.—*D. Butto, DPM*

Teaching Opioid Tapering through Guided Instruction

Austin RC, Fusco CW, Fagan EB, Drake E, Pacious J, Dickens H, Galvin SL, Wilson CG.

Fam Med. 2019 May;51(5):434-437.

Objective—Due to the opioid epidemic as a result of over-prescription, the Centers for Disease Control and state governments have worked together to create guidelines for proper physician management of chronic non-cancerous pain, and have instated opioid-limiting legislation. This has incited a need to educate family medicine residents and physicians on proper opioid prescribing and tapering, especially with the prevalence of patients with chronic non-cancerous pain. This study sought to evaluate the impact of the implementation of a multi-component opioid tapering education course in a family medicine residency program, and assess the degree to which this education course affected opioid prescribing within a family medicine practice.

Methods—The University of North Carolina Health Science at the Mountain Area Health Education Center is a family medicine practice in which 34 family medicine residents and 20 faculty family medicine physicians collectively work to treat about 23,000 patients. The practice reports that in 707 (3.1%) of the facilities, 23,000 patients were undergoing chronic opioid therapy (COT) for non-cancerous chronic pain. In July 2016, a three-part opioid tapering educational course was administered to the residents. The course heavily focused on guided instruction, including role-playing scenarios and concentrated periods of time with COT patients to practice CDC opioid administration guidelines and tapering protocols. In July 2017, a retrospective chart review of the 707 patients on COT was conducted that evaluated patient opioid usage prior to and after the addition of the opioid tapering educational course. The assessment of the study was measured by recording the number of patients on COT, average morphine equivalent daily (MED) per patient, percentage of patients on ≥ 50 MED and ≥ 90 MED, and number of patients on concomitant benzodiazepines prior to and after the implementation of an opioid tapering curriculum.

Results—During the course of this retrospective study, the retention rate remained over 90%. One hundred eighty-eight (29%) of the original 707 patients tapered off of COT and ceased usage of opioid medications for three months or longer. The percentage of patients on ≥ 50 MED (30.6% versus 25%, $p = 0.001$) and ≥ 90 MED (19.4% versus 14%, $p = 0.027$) decreased significantly. The number of patients on concomitant benzodiazepines lessened from 212 patients to 131. The average MED of active patients who remained on COT slightly increased from 53.4 to 58.5.

Conclusion—This study suggests that supplying family medicine healthcare providers with education on opioid tapering and guided instruction in accordance with CDC guidelines results in less patients on COT. This demonstrates the role of physician education in the current fight against the opioid epidemic in the United States.—*I. Fils-Aime*

♦ The opioid crisis is often at the forefront of national and medical news. It is known that pain management protocols may not be fully taught in detail to residents or practicing physicians. This study implemented an educational process for physicians and assessed its ability to taper long-term opioid patients off of chronic opioid therapy. Their approach was one of awareness, direct instruction and guided instruction. They were able to taper 29% of their patients off of chronic opioid therapy with a retention rate of over 90%. If given the opportunity, it may be beneficial to attend formal classes or lectures on pain management therapy and prescribing.—*D. Butto, DPM*

Characteristics of Physicians who Prescribe Opioids for Chronic Pain: A Meta-Narrative Systematic Review

Hooten WM, Dvorkin J, Warner NS, Pearson AC, Murad MH, Warner DO.
J Pain Res. 2019 Jul 24;12:2261-2289.

Objective—The non-pharmaceutical usage of prescription opioids is a well-known public health crisis, and the amount of prescribed opioids has significantly elevated over the past 20 years. The ultimate goal of this systematic review was to recognize the attributes of fully-trained physicians (excluding resident physicians and non-physician clinicians) who prescribe opioids to adults with chronic pain. The researchers in this study assessed these physician attributes through evaluation of patient characteristics, practice environment characteristics, and opioid prescriber characteristics.

Methods—This systematic review was conducted through an all-inclusive search of databases from January 1980 to December 2017 for studies on practitioner characteristics influencing opioid prescribing practices. Studies that were chosen reported information about physician beliefs and attitudes about opioid

use, previous training in opioid and pain management, professionalism, and physician demographics. The data was reconstructed into four main categories and subcategories, with the first main category being physician factors and subcategories consisting of beliefs and attitudes about opioid use, pain knowledge and training, awareness of adverse events, and opioid management practices. The second main category was patient factors with subcategories consisting of pain etiology, co-morbid conditions, and patient satisfaction. The third main category was practice environment with subcategories consisting of regulatory scrutiny and clinical resources, and the fourth main category was physician demographic (with no subcategories). The Newcastle-Ottawa Scale for cross-sectional studies was used to examine the risk of bias in the selected studies. A total of 2,508 studies were evaluated, 22 of which were accepted into the systematic review study based on inclusion criteria. The majority ($n = 20$) of the selected studies were cross-sectional, where the participants completed a survey at a single point in time.

Results—This study found that physicians felt confident and comfortable in prescribing opioids. However, physicians also felt high levels of dissatisfaction with the effectiveness of chronic pain treatments. Although 51% to 70% of physicians documented attending previous educational training in pain management, the majority of physicians reported concerns of inadequate training and self-knowledge in pain management and opioids. Physicians also reported a significant self-awareness of side-effects and potential for misuse, abuse, and addiction which has led physicians to uniformly support opioid management systems such as prescription drug monitoring programs and urine drug screens. However, doctors did not support the usage of opioid contracts/sign agreements.

The results of this study regarding patient factors showed that physicians are less likely to prescribe opioids for patients with a history of substance abuse and an increased probability that they will prescribe opioids for cancer pain than chronic non-cancer pain (which aligns with CDC recommendations). Doctors are also distressed about disagreement or conflict with patients when adjusting or lowering opioid dose.

Regarding practice environment, physicians reported major concerns about the regulatory oversight and felt scrutiny of regulatory institutions has influenced their prescribing habits. Doctors also yearn for access to pain specialists and opioid prescribing policies, guidelines, and algorithms which are currently lacking. Finally, physicians note that patients with chronic pain lengthen office visits. The researchers noted that the risk of bias within the study designs of the selected studies was deemed to be high.

Conclusion—This systematic review provides clinically relevant information and a more detailed view of physicians who manage and prescribe long-term opioids for non-cancerous chronic pain. Research is needed to create interventions that will increase/improve satisfaction treating chronic pain and for physicians to

attend ongoing training programs on pain-related medicine. Investigation is also needed to understand how physicians perceive pain related to patient diagnosis, and if these diagnoses affect pain care management.—*I. Fils-Aime*

♦ There has been a reduction in the overall quantity of prescribed opioids, yet there is a rise in overdose deaths attributed to other substances such as fentanyl. This systematic review aimed to identify the characteristics of physicians who prescribe opioids to adults with chronic pain. What was found was that physicians are confident, comfortable or competent in prescribing opioids and managing pain. Physicians report an overall high level of dissatisfaction in managing and prescribing opioids, and do have a high awareness for the potential of opioid misuse. Physicians are less likely to prescribe for patients with a history of substance abuse. Overall, physicians have major concerns about regulatory scrutiny in prescribing pain medications. Most importantly, physicians report inadequate training in pain management. Unfortunately, opioid prescribing is common in the physician's day-to-day work, but our overall training in doing so is lacking. As practicing physicians, we may need to take courses or attend lectures on prescribing, and pain management may need to be better implemented into the medical education and training of residents.—*D. Butto, DPM*

QUESTIONS

1-1. According to Merrill et al., what is the mean number of opioid doses prescribed after surgery?

A. 15.3
B. 36.1
C. 20.4
D. 27.2

1-2. According to Hooten et al., what is one major concern reported by physicians regarding their prescribing of pain medication?

A. Lack of regulation oversight
B. Inadequate physician training
C. Patients refusing treatment
D. Lack of confidence in prescribing decisions