



Editorial

Battling the opioid epidemic: lessons learned and management strategies

Mohamad J. Halawi, MD ^{a, *}, Jay R. Lieberman, MD ^{b, c}

^a Department of Orthopaedic Surgery, University of Connecticut Health Center, Farmington, CT, USA

^b Department of Orthopaedic Surgery, Keck School of Medicine of University of Southern California, Los Angeles, CA, USA

^c American Association of Hip and Knee Surgeons, Rosemont, IL, USA

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While the roots of the opioid epidemic are multifaceted, there are concerning statistics that deaths from prescription opioids were 5 times higher in 2016 than in 1999, and there were 58 opioid prescriptions written for every 100 Americans in 2017 [1]. While it may sound intuitive to impose rules, mandates, and punitive actions, it is unlikely that these measures will reverse deeply rooted societal traditions and decades-old reliance on opioids. Although weaning off chronic opioid users is essential, it is equally critical to prevent the next generation of opioid users. Moving forward, future research should not only explore developing safer analgesics but also help us understand the cognitive, emotional, and behavioral response to pain. We need to understand how to decrease reliance on opioid and nonopioid agents alike.

While our basic science understanding of nociception (the pathophysiology of tissue damage) has arguably not significantly

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* Corresponding author. Assistant Professor, Department of Orthopaedic Surgery, University of Connecticut Health Center, 263 Farmington Avenue, Farmington, CT 06030, USA. Tel.: +1 860 679 2000.

E-mail address: halawi@uchc.edu

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advanced in the recent years, there has been a surge of interest in nonopioid-based analgesia for postsurgical pain in the past decade. The classic example is multimodal analgesia following total joint arthroplasty. In addition to reducing opioid requirements postoperatively, multimodal analgesia regimens have been shown to be safer with less postoperative complications [2-6]. We are now seeing wider applications of nonopioid-based analgesia in other subspecialties such as trauma [7-9], spine [10-12], and upper extremity [13]. We are also seeing an increased number of publications in journals outside of orthopaedic surgery [14-16]. Ironically, most of the pharmacologics used in multimodal analgesia (eg, acetaminophen, nonsteroidal anti-inflammatory drugs (NSAIDs), and local anesthetics) have been available for decades, but now there is an increased awareness of the detrimental side effects associated with opioids. Further research is needed to elucidate both the individual and less tractable societal factors that cultivate opioid dependence. This is underscored by the troubling finding that Americans consume about 80% of the world's prescription opioids despite constituting less than 5% of the world's population [17].

Both patients and surgeons are seeking alternative agents to decrease or eliminate opioid use. There is intriguing evidence showing the efficacy of cannabinoids as opioid-sparing agents that are capable of not only providing analgesia, but also antagonizing several side effects of opioids [18]. A recently published retrospective analysis of 81 patients undergoing primary total joint arthroplasty showed that the addition of dronabinol, a cannabinoid, to multimodal analgesia was associated with lower opioid consumption and shorter length of stay [19]. Clearly, more reliable data are needed to weigh the benefits of cannabinoids against their potential for abuse and addiction.

Proper patient counseling represents another potential area for improvement. For patients undergoing surgery, it is important to discuss pain management strategies preoperatively so they have clear understanding of what to expect after surgery. Patient counseling should emphasize that postoperative pain is to be expected but will normally improve and can sometimes be managed non-pharmacologically. For patients on chronic opioids, the surgeon should encourage decreasing opioid use and consider referral to pain management specialists. Preoperative opioid use has been

associated with higher risk of perioperative complications and increased postoperative narcotic requirements [20-23]. There is also emerging evidence that patients who successfully decrease their opioids use before surgery have significantly improved clinical outcomes that are similar to opioid-naïve patients [24]. Patients on opioids who cannot wean off preoperatively will likely not be able to do so postoperatively, potentially due to dependence. Unfortunately, most orthopaedic surgeons do not know how to identify patients that are opioid dependent or at risk for substance abuse. Several studies have examined the risk factors for prolonged opioid use. Among the identified risk factors are preoperative narcotic use, age less than 50 years, female gender, depression, back pain, substance abuse, smoking, alcohol abuse, and obesity [20,23,25-30]. The importance of identifying patients who are at risk for substance abuse is underscored by the reality that approximately 40 million Americans aged 12 years and older have a diagnosable substance use disorder and additional 80 million Americans fall into the category of risky substance users [31].

Patients with chronic pain or those who are not surgical candidates pose another challenge. Coping with chronic pain does not mean prescribing more pain medications. Instead, it requires an understanding of the patient's circumstances (occupational demands, family support, living environment, and so forth) with the goal of modulating activities and dynamics to help restore function with minimal disability and less need for pain medications. Complementary and alternative therapies may also be helpful non-pharmacological options despite receiving little attention in the orthopaedic literature. A variety of techniques are available including mind-body therapy, homeopathy, acupuncture, message therapy, and movement therapy (eg, tai chi). Among patients with osteoarthritis, 4 complementary therapies (tai chi, acupuncture, yoga, and massage therapy) have been shown to reduce pain and improve physical function at least in the short-term period [32]. Referrals to specialized mental health care (eg, psychiatric, cognitive, and behavioral) or involvement of social services should be considered as well.

At an individual or group practice level, there remains a need for an honest and comprehensive re-evaluation of our opioid-prescribing habits, particularly for chronic pain. To date, there is no proven pharmacological treatment (opioids and nonopioids) for chronic pain. Multiple guidelines have been published to help the orthopaedic surgeon [33,34]. In 2016, the Centers for Disease Control (CDC) and Prevention issued 12 clinical recommendations for opioid therapy outside of active cancer, palliative, and end-of-life care [33]. The first recommendation emphasized that non-pharmacologic therapy and nonopioid pharmacologic therapy are preferred for chronic pain and that opioid therapy should be only considered in cases of medical necessity when the benefits outweigh the risks. Unfortunately, there continues to be high prevalence of opioid prescribing in patients with chronic pain [35] with the yearly rate of opioid prescriptions for osteoarthritis alone estimated at 11.5% [36], underscoring the need for to re-evaluate our opioid-prescribing habits.

Table 1 provides a summary of management recommendations for musculoskeletal pain. Before initiating pharmacologic interventions, it is important to keep in mind that nonpharmacologic strategies (activity modification, work restriction, reassurance, empathy, physical therapy, biofeedback, relaxation techniques, cryotherapy, electrical stimulation, and bracing) may be useful in some patients. For patients with complex pain syndromes, multiple pain generators, or history of substance abuse, a multidisciplinary approach is indicated and should include referral to pain and/or addiction specialists. There is a strong body of evidence documenting the success of multimodal pain regimens during the perioperative period for patients undergoing total hip and knee

Table 1
Recommendations for managing musculoskeletal pain.

Patient characteristics	Recommendation
Opioid-naïve or long-term opioid users: minor procedures	Opioids are generally not necessary with nonopioid analgesics often sufficing. If absolutely required, a low-dose quick-release opioid can be prescribed for 2 or 4 days at most.
Chronic opioid users: major procedures	Multimodal analgesia (local infiltration, nerve blocks, acetaminophen, NSAIDs, and so forth) is first line. A low-dose quick-release opioid can be prescribed for a few days. Coordination with other opioid prescribers is imperative, especially in those taking other medications that increase their chances of opioid overdose. One and only one provider should prescribe opioids extending beyond 14 days with the long-term prescribing provider being responsible for this. Preoperative counseling should be that, in the absence of an objectively recognizable surgical complication, opioid dosing should return to preoperative levels by the first or second week after surgery. If possible, opioids should be weaned off or amounts reduced preoperatively.
Opioid-naïve: major procedures	Multimodal analgesia is first line. A low-dose quick-release opioid can be prescribed for a few days. Two prescriptions for smaller amounts preferred over a single large prescription to prevent the potential for opioid misuse from unused pills.
Opioid-naïve or long-term opioid users: chronic painful joint conditions	There is no clear evidence to support any particular pharmacologic intervention. Opioids are not recommended. The discussion should be that if pain becomes severe enough that is refractory to nonopioid therapy, the level of pain is usually an indication for surgery and not an indication to initiate or escalate opioids. If no suitable orthopedic remedies are available or patient is not a surgical candidate, consider referral to a pain specialist.
Patients experiencing an abrupt onset of significant pain due to acute injury	Focus should be on alleviating the inciting event in an expedited manner (eg, operative fixation). Most patients often experience significant pain relief postoperatively and opioids may not be necessary. For patients with higher levels of pain despite nonopioid interventions, a low-dose quick-release opioid can be prescribed for a few days.

arthroplasty [2-4]. The use of opioids in periarticular injections, nerve blocks, and spinal anesthesia requires careful consideration because it is not clear whether they are effective in relieving postoperative pain, and opioids are associated with adverse events including nausea, vomiting, and urinary retention [37-40]. Orthopaedic practices should establish standardized protocols and policies to control and limit opioid use postoperatively. This includes providing opioids for short duration and in smaller amounts to minimize the potential for opioid misuse [41]. Extended-release opioids should definitely be avoided [42]. The use of patient contracts is a subject of controversy. Nonetheless, providing patients with written information explaining the practice's pain prescribing policy may help reiterate the limits of opioid prescribing,

especially in patients with a history of substance abuse and/or drug-seeking behavior. There is also emerging evidence that receipt of pain management information preoperatively is associated with increased functional gain postoperatively [43]. It is important that arthroplasty surgeons become engaged in this war on opioids to limit their use because this will truly benefit our patients.

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