Interdisciplinary Mitigation of Opioid Misuse in Musculoskeletal Patients

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Abstract *Background:* The opioid prescribing patterns of orthopedic surgeons have been shown to play a role in exacerbating rates of opioid misuse among post-surgical patients. Demonstrable success has been appreciated by combining policy-level approaches and clinical education-based strategies to inform patients of alternative modalities of post-operative analgesia. *Questions/Purposes:* The purpose of this review was to address two questions: What are the most substantiated measures orthopedic surgeons can take to limit opioid misuse or addiction among their patients? What advantages are gained in orthopedic surgeons' collaborating with other healthcare professionals with influence over patients' post-operative opioid exposure? *Methods:* We searched two databases for articles on multidisciplinary policy-based solutions to mitigating the opioid overdose crisis among musculoskeletal patients. Articles produced from the search were searched for further evidence supporting the use of standardized clinical and administrative protocols in mitigating opioid misuse within this patient

population. Successful approaches to mitigating misuse of opioids in this demographic were synthesized from recurring themes in the studies. *Results:* Multiple articles support orthopedic surgeons being aware of the risk factors for chronic opioid use among their patients, as well as multidisciplinary strategies involving orthopedic surgeons and other healthcare/governmental professionals to address the burden of the opioid crisis on surgical patients. *Conclusions:* Addressing the misuse of opioids among orthopedic patients requires appropriate prescribing practices and long-term support of patients. Collaboration between surgeons and policymaking entities is recognized as an effective population-wide approach to preventing opioid dependence, misuse, and addiction.

Keywords interdisciplinary · multilateral · opioid overdose crisis · post-operative pain management · orthopedic surgery · musculoskeletal patients · medico-legal collaboration · health policy · bioethics · anesthesia · nursing

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Introduction

Recognized as an epidemic [29], the opioid crisis has resulted in part from ineffective standardized regulatory protocols for educating and cautioning patients about the dangers of opioid use, misuse, dependence, and addiction. Orthopedic surgeons are often cited as the third-highest opioid prescribers [20]. Multidisciplinary approaches to mitigating the burden of opioid overprescription and misuse have helped identify strategies to decrease the rate of patients' opioid misuse after orthopedic surgery [1, 3, 4, 25]. Policy-level solutions to combating the opioid crisis show the most promise in reducing unnecessary access to opioid painkillers and preventing long-term addiction to them [24]. Such solutions include collaboration between lawmakers and orthopedic physicians on low-dosing of opioid pills, exhausting conservative measures of analgesia before

beginning opioid pharmacotherapy, and providing counseling and therapy groups for long-term treatment of opioid addiction [27]. We sought to investigate the potential of policymaking between physicians and pharmaco-legal entities to mitigate the factors that contributed to the current epidemic.

A non-systematic review of the orthopedic literature related to reducing opioid overprescription, determining the appropriate dosing of opioid analgesics, and preventing misuse, dependence, and addiction to opioids in post-operative patients is an effective means of creating solutions. A consensus on the strong association between medical-legal collaboration and the implementation of anti-addiction measures will further enable research and innovation [27]. Orthopedic physicians in particular stand to enhance their understanding of their role in lessening opioid misuse among their patients by reading such a review.

Methods

We sought to review the literature to address two questions concerning the regulation of opioids in orthopedics: what can orthopedic surgeons do to minimize opioid misuse, and how can medical-legal initiatives create safer alternatives to opioids for post-operative pain management? We were particularly interested in interdisciplinary approaches for lessening opioid misuse in orthopedic patients. Multimodal pain management for orthopedic patients represents a powerful tool for promoting the welfare of this patient population [21, 27].

We searched the Google Scholar and PubMed databases using the search terms “orthopedic surgery” + “opioids” + “policy” + “prevention.” Our inclusion criteria were articles published between 2010 and 2018 in the USA. These searches produced 42 articles. We excluded articles published outside the USA and those published before 2010, leaving 25 articles for our analysis.

Results

This review found many articles suggesting that orthopedic surgeons have the potential to mitigate post-operative opioid misuse by (1) reducing the number of doses prescribed, (2) educating patients in alternative methods of analgesia, and (3) providing guidance for the appropriate storage and disposal of opioid medication [2, 12, 15, 19, 28]. Given that patients are more likely to chronically use opioids when they are prescribed at discharge, orthopedic surgeons must be mindful of the need for discussing this risk with patients, particularly opioid-naïve patients, prior to hospital discharge [6, 32, 33]. Multiple studies have encouraged the use of alternatives to opioids, such as non-steroidal anti-inflammatory drugs, acetaminophen, ketamine, or pregabalin/gabapentin, which have been shown to promote opioid cessation and prevent chronic opioid use [14]. The use of multimodal analgesia—including peripheral nerve blocks and

non-opioid pain medication—has been demonstrated to reduce opioid prescription rates in patients undergoing total hip or knee arthroplasty [7, 22]. By educating patients on the dangers of opioid misuse, the proper storage and disposal of unused medication, and the alternatives to opioids for pain control, orthopedic specialists may be able to reduce the risk for revision surgery due to surgical failure [17]. Reducing the amount of opioids prescribed to a cohort of post-operative ankle fracture patients was found to produce rates of disability and treatment satisfaction comparable to those of a cohort of patients prescribed a greater amount of opioids, suggesting that improvement in functional status may not be directly correlated with amount of opioids used after a certain threshold [11]. However, a correlation has been observed between the amount of opioids prescribed and various post-operative complications, further underscoring the need for improved prescribing practices [8, 9].

Orthopedic physicians stand to benefit from interprofessional collaboration in attempting to decrease patients' long-term exposure to opioids after surgery [13, 27]. Communicating with a patient's primary care provider and anesthesiologist can enable a pain-control regimen that includes a tapering plan that may involve the use of a nerve blockade and non-opioid medication to promote post-operative opioid cessation [26, 31]. Incorporating complementary and alternative medicine (CAM) and Centers for Disease Control and Prevention (CDC) pain control guidelines into post-operative pain treatment strategies has the potential to reduce unnecessary prescriptions [18]. The American Medical Association, CDC, and US Food and Drug Administration, for example, are organizations involved in policy-level efforts to decrease chronic opioid use. Orthopedic surgeons are in a position to provide valuable feedback to governmental agencies in order to help their future patients achieve comfort more safely following an operation [5, 27]. Patients misusing opioids pre-operatively represent another concern that physicians can address by encouraging legislation aimed at reducing overprescription [16]. Given the known association between long-term pre-operative opioid use or misuse and higher rates of post-operative complications, the issues of pain control and clinical outcome are strongly intertwined in candidates for orthopedic surgery [23]. To improve non-opioid pain control, surgeons should discuss their concerns with nurses, pharmacists, and other services involved in the patient's care [30].

Discussion

Mitigating the misuse of opioids in musculoskeletal patients has become a more common topic in the orthopedic literature within the last few years. Orthopedic surgeons' contribution to the current opioid crisis is undeniable, as are the novel measures that have emerged to prevent opioid misuse [30]. Increasing awareness among orthopedic surgeons of preemptive initiatives to prevent opioid addiction is needed to address the growing burden within their patient population.

While the effects of proper prescribing practices and alternative forms of analgesia are well-documented in promoting the appropriate use of opioids, studies describing collaboration between orthopedic surgeons and policymaking professionals regarding opioid prescribing are rare. Therefore, in our non-systemic literature review, we sought to elucidate the potential of combined clinical and administrative efforts to reduce chronic opioid use and misuse. It is hoped that this review will encourage further research into the benefits of initiatives aimed toward limiting excessive access to opioids. Twenty-five indexed publications were surveyed to reach conclusions on the most effective measures of preventing opioid misuse and identify the advantages inherent in employing multidisciplinary efforts to achieve this goal.

Limitations of this review include a paucity of publications describing interdisciplinary efforts to address the opioid crisis by orthopedic surgeons and administrative/legal personnel. Orthopedic literature related to addressing opioid misuse has emerged at an increasing rate over the past few years, meaning that many studies on the effectiveness of preventive practices are recent and without extensive follow-up periods. Investigations into the efficacy of non-opioid analgesics are also relatively recent and more research is warranted on achieving analgesia through conservative means. Although questions on which measures addressing the opioid crisis among orthopedic patients are effective can be answered by our study approach, it is more difficult to propose standardized guidelines after such a review. Questions related to specific initiatives that should be encouraged with respect to collaboration between orthopedic surgeons and administrative, legislative professionals are also difficult to answer using this study approach, given the dearth of literature on this topic.

We found that orthopedic surgeons are advised to familiarize themselves with multimodal pain control methods, including peripheral nerve blocks, non-opioid pharmacotherapy, and lifestyle modifications [22, 31]. Collaboration among surgeons, anesthesiologists, nurses, and all other healthcare staff involved in the care of a patient after orthopedic surgery is a well-substantiated measure in reducing risk of postoperative dependence or addiction [10]. The bioethical principle of non-maleficence holds surgeons accountable for the damage done through the overprescription of opioids. Patients should be educated on the risks of addiction and the techniques of storing and disposing of unnecessary opioid pills. Lastly, legal protocols incorporating the feedback and assistance of orthopedic surgeons stand to dramatically limit access to opioid pharmacotherapy to only those who cannot achieve pain control through safer means [27].

Compliance with Ethical Standards

Conflict of Interest: Ammar N. Saigal, MD, MPH, and Henderson M. Jones, MD, JD, declare that they have no conflict of interest.

Human/Animal Rights: N/A

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