

Opioid-Free Analgesia in the Era of Enhanced Recovery After Surgery and the Surgical Home: Implications for Postoperative Outcomes and Population Health

Nirav V. Kamdar, MD, MPP, Nir Hoftman, MD, Siamak Rahman, MD, and Maxime Cannesson, MD, PhD

In this month's *Open Mind* of the Journal, Zaccagnino et al¹ promote the perioperative surgical home (PSH) as the ideal venue to house and fund the much needed perioperative pain management service. The authors argue that acute pain management throughout the perioperative period is currently substandard. A patient-centered, individually tailored pain treatment plan is critical to improve patient experience after surgery and reduce variability in pain-related outcomes. In an upcoming era of bundled payments, the value proposition of anesthesiologists increases with identifying high-risk pain patients in advance of surgery and, thereafter, outlining and implementing a perioperative treatment plan up to discharge. Perioperative pain services embedded within PSH systems give anesthesiologists an opportunity not only to tailor pain regimens for patients during the surgical episode, but also to critically appraise our traditional pain management strategies. In fact, anesthesiologists have introduced paradigms that may both reduce variability of patient outcomes during the surgical episode and define our impact on population health and national epidemics.

In the face of widespread use of opioid analgesics to treat pain for surgical procedures, opioid addiction and its associated morbidity and mortality has taken center stage for public health (a list of terms for clinical issues associated with pain medications appear in the Table²). Among Americans, the untimely death of pop star, Prince, highlighted the dangers of misuse and abuse of prescription opioids. For acute care physicians, the story had a familiar refrain: the fatal substance misuse started with tolerance to opioids prescribed after hip orthopedic surgery. Recently, we have seen an increase in news and medical journal articles focused on the opioid overuse and abuse epidemic in

the United States. Opioid overdose is now a leading cause of accidental death, and opioid prescriptions by perioperative physicians (pain specialists, surgeons, and rehabilitation specialists) account for a portion of the 19,000 annual cases.³ Such high morbidity and mortality associated with opioid medications prompted the Centers for Disease Control and Prevention and the Food and Drug Administration to provide new opioid-prescribing guidelines for patients suffering from chronic pain. Furthermore, they also called for physicians to "proactively treat [sic] opioid addiction, while reinforcing evidence-based approaches to treating pain in a manner that spares the use of opiates [sic]."⁴ These calls from our national health agencies primarily address the mismanagement of chronic pain with excessive opioids, and, while appropriate medical prescribers⁵ can be blamed in a straw man argument, as acute care physicians, we, too, must proactively respond to this national challenge. First, we must understand our contribution to opioid tolerance, the process which often begins during recovery from surgery.⁶⁻⁸ The enhanced recovery after surgery (ERAS) pathways within the surgical home's models of care represent a great opportunity for anesthesiologists to deliver opioid-sparing or opioid-free analgesia (OFA) with the goal to reduce opioid use in the outpatient setting.

Over the past 15 years, interest in ERAS pathways has surged as surgical recovery times and in-hospital stays have been scrutinized by both physicians and administrators. Although the ERAS approach to reducing length of stay is multifaceted and includes management goals for several parameters (ie, hemodynamics, fluid administration, ventilation, gut motility), postoperative pain management should be a capstone area of focus. Opioids are widely known to have a side-effect profile that slows hospital recovery, thus delaying both discharge and return to normalcy. These side effects include increased constipation, decreased bowel motility, ileus, postoperative nausea and vomiting, sedation, and delirium.⁹ Additionally, an association has been shown between opioid administration and cancer recurrence in the surgical oncology population, specifically, breast and prostate cancer.^{10,11} Anesthesiologists are well positioned to influence the success of ERAS protocols for adequate pain control, having many tools at their disposal to provide opioid-sparing or even OFA during the perioperative period.¹² In addition to regional anesthesia, many nonopioid pain agents that anesthesiologists

From the Department of Anesthesiology and Perioperative Medicine, David Geffen School of Medicine, UCLA, Los Angeles, California.

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Address correspondence to Nirav V. Kamdar, MD, MPP, Department of Anesthesiology and Perioperative Medicine, David Geffen School of Medicine, UCLA, 757 Westwood Blvd, Rm 2331D, Los Angeles, CA 90095. Address e-mail to nkamdar@mednet.ucla.edu.

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Table. Clinical Sequelae Related to Pain Medications

Term	Definition
Substance misuse	The use of any drug in a manner other than how it is indicated or prescribed
Substance abuse	The use of any substance when such use is unlawful or when such use is detrimental to the user or others
Addiction	A primary, chronic, neurobiological disease that is characterized by behaviors that include one or more of the following: impaired control over the drug, compulsive use, continued use despite harm, and craving. Addiction is generally understood to be a chronic condition from which recovery is possible; however, the underlying neurobiological dysfunction, once manifested, is believed to persist
Physical dependence	A state of adaptation that is manifested by a drug class-specific withdrawal syndrome that can be produced by abrupt cessation, rapid dose reduction, or decreasing blood levels of the drug and/or by administration of an antagonist
Tolerance	A state of adaptation in which exposure to the drug induces changes that result in diminution of one or more of the drug's effects over time
Aberrant drug-related behavior	Behavior suggestive of a substance abuse and/or addiction disorder. Examples are selling prescription drugs, prescription forgery, stealing or "borrowing" drugs from others, injecting oral formulations, obtaining prescription drugs from nonmedical sources, multiple episodes of prescription "loss," repeatedly seeking prescriptions from other clinicians, evidence of deterioration in function (work, home family), and repeated resistance to change therapy despite evidence of physical and psychological problems.

The Table recreated from recent review by Jamison and Mao.²

can administer reduce postoperative opioid requirements, including directed infiltration and/or intravenous infusions of local anesthetics, acetaminophen, nonsteroidal analgesics, N-Methyl-D-aspartate antagonists (ie, ketamine, Mg²⁺), α -2 agonists (ie, clonidine and dexmedetomidine), anticonvulsants (gabapentin and pregabalin), glucocorticoids, and β -blockers. Multimodal analgesia strategies rest on addressing pain from a variety of receptors beyond μ -1 and μ -2, which are commonly addressed by opioids. With a new philosophy, anesthesiologists should regard the operating room as a unique environment where we can safely achieve pain control by utilizing highly specialized agents administered only in this setting. Such a practice could lessen patients' exposure to opioids, thus reducing our contribution to opioid tolerance that can develop in the early postoperative period. Since providers in numerous disciplines are comfortable administering opioids for postoperative pain control, why not save the μ receptors exclusively for early postoperative rescue? We can address pain using a different variety of receptors while patients are in the operating room, where anesthesiologists can safely monitor and manage the side effects of opioid alternatives. ERAS protocols have the potential to inculcate this pain management philosophy, and we must utilize this opportunity to trial an opioid-free pain management strategy.

An OFA strategy within ERAS provides an opportunity to reduce frequent, often debilitating chronic postsurgical pain and decrease potential opioid dependence associated with it, while providing short- and long-term benefits to patients. In the immediate postoperative period, OFA will benefit patients by reducing the incidence of vomiting, ileus, and delirium, thus allowing for earlier feeding and discharge from the hospital.¹³⁻¹⁵ A reduction in postoperative hyperalgesia¹⁵⁻¹⁷ from the currently reported incidence of 3.1%–7.7%^{6,18} is a potential intermediate benefit of OFA.¹⁹ Reducing opioid exposure with an OFA strategy provides additional avenues to circumvent opioid tolerance and potentially reduce cancer recurrence in oncology patients.

Furthermore, an OFA pain management strategy provides additional opportunity for anesthesiologists to actively manage patient education and expectations in the perioperative environment. In the old paradigm, the

anesthesiologist was involved in preinduction to discharge from the postanesthesia unit; our future within a PSH paradigm expands our roles to the presurgical and postdischarge environments. As Zaccagnino et al¹ argue, patient education regarding expectations about postoperative pain and its corresponding management is a cornerstone for optimizing patient-centered care. Instead, "No Pain Campaign" slogans at major health centers market unrealistic expectations directly to patients and contribute to our liberal prescription behavior with opioid medications. Alternatively, an OFA strategy invites an additional educational conversation in the preoperative period regarding expectations about pain, which can affect patient satisfaction. If we can educate patients that they should expect to have postoperative pain in exchange for intermediate and long-term benefits, a self-reported pain score of "3" or "4" could be satisfactory to patients. In comparison, the "No Pain Campaign" strategy could make a self-reported pain score of "2" unacceptable to patients just by virtue of their preoperative expectations. ERAS pathways, with an OFA philosophy, give an additional opportunity for anesthesiologists to screen for aberrant opioid behavior in the preoperative setting using tools for risk stratification such as the opioid risk tool and urine toxicology screening, to identify the patients who may need crucial education on how to safely transition off of opioids in the postoperative recovery period. By linking our in-hospital strategies to population health outcomes, anesthesiologists will be more invested in developing and following health care metrics for long-term outcomes. Such actions will increase the visibility of anesthesiologists among patients and shape the patient satisfaction metrics utilized by anesthesiologists in the increasingly important public reporting and performance-based reimbursement rubrics.²⁰

So why conduct such a pain management strategy within ERAS? ERAS' mission statement, to advance the "education and implementation of evidence-based practice," provides a smaller microcosm to create a culture change for pain management. OFA is far afield from a balanced anesthesia strategy, and a culture change of this magnitude requires a focused venue for implementation. Since ERAS protocols have very proscribed management paradigms, health

centers can implement the OFA strategy with easy-to-follow protocols. In this environment, anesthesiologists can analyze the longitudinal outcomes of short- and long-term opioid use, postoperative pain, addiction, morbidity, and mortality.

Finally, ERAS provides anesthesiologists an avenue to expand our brand and its value to the broader health care process, including population health. As suggested by Zaccagnino et al,¹ while the PSH can serve as the venue for a custom-tailored, patient-centered pain management service for anesthesiologists, similarly, ERAS can serve as a testing site for OFA's benefits to population health. Aggressive opioid-based postoperative pain control has been demonized as a major contributor to the national opioid addiction epidemic and its associated morbidity, ultimately leading to many preventable deaths. We must actively work to curtail the detrimental path from acute surgical pain to chronic pain syndromes that may culminate in opioid addiction. As anesthesiologists, we must also transition our public image from "the docs with good drugs"—a reputation attributed to our ability to administer strong intravenous opioids and benzodiazepines—to proactive healers of our national opioid addiction epidemic. A unified voice from anesthesiologists and surgeons, when more clinically appropriate, to commit to OFA, beginning from the ERAS protocols, will demonstrate that our specialty is proactively addressing national public health epidemics. This stance will highlight our leadership role as physicians to regale our premier vow to our patients in the Hippocratic Oath: *primum nil nocere*, "first do no harm." ■■

DISCLOSURES

Name: Nirav V. Kamdar MD, MPP.

Contribution: This author helped write and edit the final manuscript.

Name: Nir Hoftman, MD.

Contribution: This author helped write and edit the final manuscript.

Name: Siamak Rahman, MD.

Contribution: This author helped write and edit the final manuscript.

Name: Maxime Cannesson, MD, PhD.

Contribution: This author helped write and edit the final manuscript.

This manuscript was handled by: Richard Brull, MD, FRCPC.

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