The Importance of Optimizing Acute Pain in the Orthopedic Trauma Patient

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KEYWORDS

• Regional anesthesia • Acute pain • Postoperative pain • Orthopedic trauma patient

KEY POINTS

- Postoperative pain and opioid consumption can lead to recovery delays and long-term consequences for the surgical patient population.
- Studies have shown that acute pain management is poor, and opioid use as a primary analgesic is not sustainable due to cost, efficacy, and complications.
- Patients with orthopedic trauma are difficult to treat for acute pain, because they are at a greater risk of pain and opioid-related adverse events.
- Optimizing acute pain management in patients with orthopedic trauma is important and can translate into significant positive physiologic and financial outcomes.
- Although multiple examples of outcome improvements are available and are likely viable, outcome success will depend more on systemwide implementation rather than a specific regimen.

BACKGROUND

Over the past 20 years, there has been a dramatic increase in the attention that professional societies and regulatory agencies (American Academy of Orthopaedic Surgeons [AAOS], Eastern Association for the Surgery of Trauma ([EAST], Trauma Anesthesia Society [TAS], World Health Organization [WHO], Agency for Health Care Policy and Research, American Pain Society [APS], American Society of Anesthesiologists [ASA], US Department of Veterans Affairs, Joint Commission on Accreditation of Healthcare Organizations [JCAHCO], International Association for the Study of Pain [IASP], European Pain Federation [EFIC], Australian and New Zealand College of Anesthetists) have given to the importance of the evaluation and treatment of acute pain.[1–12] These groups have affirmed the substantial negative impact of inadequately treated acute pain, and some have specifically acknowledged the "rights" of patients to appropriate pain control (WHO, APS, JCAHCO, IASP).[12] During this same time, the number of reliable acute pain management strategies, techniques, and applications has also grown

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significantly.[13–15] Despite our greater capacity to improve the treatment of acute pain and the increased awareness of the negative financial[16–18] and physiologic[19–25] consequences of inadequately treated acute pain, many patients continue to suffer from moderate, severe, or excruciating acute pain following trauma and surgery.[5,26–32]

In addition, the overreliance on opioids as the primary analgesic agent has become the "status quo" and presents several important barriers to a rapid recovery,[33–35] as well as other important negative long-term consequences.[36] Although opioids may relieve pain in multiple areas of the body simultaneously, often a helpful feature in trauma-related injury, they are not effective analgesics for sources of "dynamic" pain (cough, ambulation) compared with other modalities.[35–37] Further, they do not mitigate central sensitization, a key determinant in the development of chronic pain,[38] and their role in mitigating the negative consequences of the neuroendocrine response[20] is lacking as well. The overreliance on opioids over the past few decades to minimize pain and suffering has led to a prescription opioid epidemic with substantial overdose death and addiction rates, which demonstrate that this strategy is not sustainable (Figs. 1 and 2). Despite this apparent conundrum, there is a growing body of literature that demonstrates significant improvements in patient outcome and health care resource utilization when acute pain management strategies are improved or optimized by incorporating multimodal analgesia (MMA) strategies.[39–44] Given the growing awareness of significant downstream implications, acute pain management demands greater attention and emphasis in health care.

Patients with orthopedic trauma comprise the full range and extremes of injury severity, age, and health status. It is well known that orthopedic injuries are among the most painful.[26,27] Beyond the common barriers to adequate acute pain treatment previously described in published articles,[45,46] there are additional barriers that may interfere with the provision of optimized acute pain management for patients with orthopedic trauma and deserve special consideration.

Due to the nature of acute traumatic injury itself, the patient demographics of traumatic injury, and the overall management of patients with acute traumatic injury, many patients with orthopedic trauma have a particularly high risk of experiencing short-term and long-term negative consequences related to suboptimally managed acute pain. These consequences are both clinically and financially relevant and result from the undertreatment of acute pain, opioid-related adverse drug events (ORADEs), and prolonged exposure to opioids.[33,34,47–52]

Although there exists a humanitarian interest in relieving the immediate suffering of patients

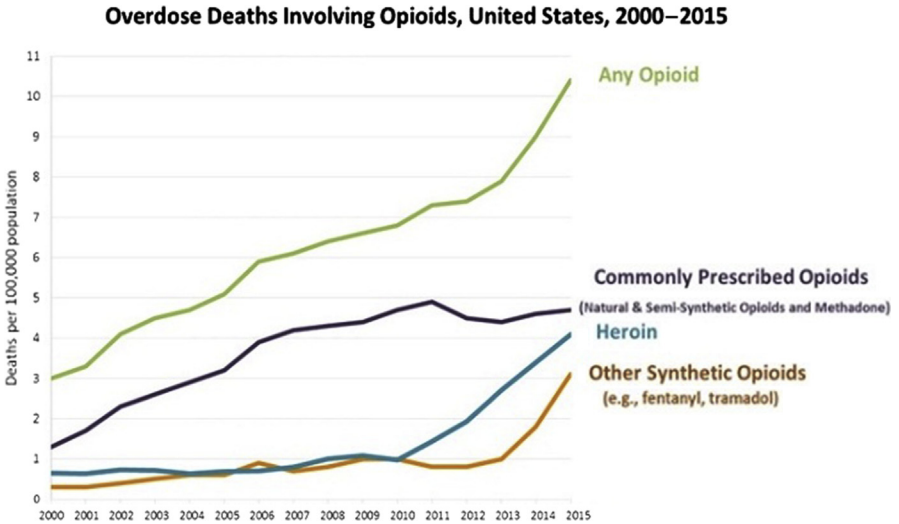

Fig. 1. US trends in opioid-related deaths between 2000 and 2015. Note: commonly prescribed opioids caused a significantly higher rate of deaths over the 15-year period than an illegal substance such as heroin. (*From* Centers for Disease Control and Prevention. National Center for Health Statistics (CDC/NCHS). National Vital Statistics System, Mortality. CDC WONDER, Atlanta, GA: US Department of Health and Human Services, CDC; 2016. Available at: https://wonder.cdc.gov/. Accessed June 15, 2016.)