Pain Control: Opioid vs. Nonopioid Analgesia During the Immediate Postoperative Period

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Purpose

The purpose of this scoping review is to compare the efficacy of opioid-free and opioid-sparing pain management approaches to traditional opioid-based approaches in postsurgical pain management, which determines: a) whether pharmacologic interventions with opioid-free approaches will result in similar or decreased numeric-rated pain scores while decreasing overall opioid use and b) whether the cost burden of utilizing an opioid-free or opioid-sparing approach will be significantly less than traditional methods.

Background

- The United States (U.S.) leads in worldwide rankings of deaths caused by opioid abuse and misuse.
- The opioid crisis has crippled an entire sector of the U.S. population as well as a large part of the health care economy.
- Since 1999, an estimated 841,000 deaths from drug overdoses have occurred in the U.S., with 70,630 deaths taking place in 2019 and 70.6% (46,860) of these drug overdose-related deaths resulting from opioids.
- Since 2018, age-adjusted rate of deaths due to drug overdose increased from 20.7 per 100,000 deaths to 21.6 per 100,000 deaths in 2019.
- Opioids are the most frequently prescribed treatment modality for postoperative pain management.
- The implementation of the Affordable Care Act (ACA) spurred a drive toward value-based care, with pain management identified as a significant factor in cost burden.
- The predicted cost of an opioid-free or opioid-sparing approach is significantly less than traditional methods.
- Opioid-sparing interventions have gained popularity in recent years due to a recent new understanding of pain and its treatment.

Results

➤ Reduction of Overall Opioid Consumption

Six of 12 high-level studies citing ketamine and/or multi-modal analgesia resulted in a decreased overall opioid use postoperatively.

➤ Ketamine's Role in Multimodal and ERAS Approaches

Ketamine is useful as a primary non-opioid intervention.

Usefulness found preoperatively, intraoperatively, and postoperatively.

There was a reduction in common postsurgical complications secondary to opioid use and a prospective reduction in drug dependence risk after discharge.

➤ Role in Quality Improvement

Implementation of standardized pain protocols using multimodal analgesics may lead to lower consumption of opioids and opioid derivatives.

Methods

- A Scoping Review was conducted in order to obtain data from formerly implemented studies regarding the efficacy of our research project.
- The following search engines were utilized: UTHSC online library, Google Scholar, PubMed Central, EBSCO Host
- MeSH key terms: anesthesia, anesthesia I.V., patient-controlled analgesics opioid, morphine, pain, surgery, analgesia, chronic opioid, chronic pain, acute pain, postoperative pain, therapeutic use, ketamine, nonopioid analgesia, opioid analgesia, propofol, postoperative ketamine uses, postoperative ketamine, qualitative postoperative ketamine, quantitative postoperative ketamine, ketamine as an alternative, systematic ketamine review, evidence-based practice ketamine, quality improvement ketamine, and ketorolac.
- Scoping Review articles were obtained between November 11, 2019, and February 4, 2020.

Results

Statistical Significance of Numeric Rating Scale (NRS) Pain Scores Postoperatively, following Ketamine Intervention

Implications for Practice

- Ketamine's use as an alternative to opioid analgesia resulted in lower NRS pain scores and decreased opioid consumption.
- Future directions of the study are aimed at implementing necessary protocols to identify chronic opioid users, active drug seekers, and reduce the risk of skewed results from higher pain scores resulting from hypersensitivity.
- Opioid-free analgesia can provide more effective postoperative pain control and reduce receptor upregulation, respiratory depression, and adverse effects from opioid administration.
- Implementation of opioid-free analgesia/anesthesia can provide more effective pain control in the postoperative period, and this alternative approach could reduce the risk of pain receptor upregulation, respiratory depression, addiction, abuse, and other adverse effects associated with opioid administration.
- Although further research must be conducted for successful and total implementation of an opioid-free approach, providers must begin taking steps toward this method of care.

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