Minimizing Unnecessary Perioperative Opioid Use in Patients Receiving Lumbar Spine Surgery

Anne Marie McKenzie-Brown, M.D.
Department of Anesthesiology, Emory University School of Medicine

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Background/Purpose

- 1st opioid exposure is often perioperatively
  - Increased risk of long term opioids, morbidity
- Department feedback effectively increased OR antibiotic and hyperglycemia compliance in 1 year
  - Intraop Antibiotic dosing and redosing (83%-92%)
  - Periop hyperglycemia control (50-85%)
- Purpose: Quality project using tests of change to minimize unnecessary perioperative opioid use

Methods

- Tests of Change
  - Education of Anesthesia Team
- The datawarehouse used to obtain data
- Lumbar spine surgery records (9/21-3/22) were evaluated for:
  - Periop opioid dose in MME
    - preop, intraop, post op
  - Opioid discharge prescriptions/surgeon

irb exemption obtained as a quality project

Results/Outcomes to Date

Effect Summary

Source	LogWorth	PValue
OR_MME	2.132	0.00737
Log(CASE_LENGTH_MINS)	0.404	0.39450
KETAMINE_OR	0.367	0.43003

Effect Tests

Source	Nparm	DF	Sum of Squares	F Ratio	Prob > F
Log(CASE_LENGTH_MINS)	1	1	912.0388	2.3470	0.1304
OR_MME	1	1	2432.5516	6.2599	0.0149*
SURGEON	2	2	1049.3614	1.3502	0.2665

Effect on discharge opioids:

- **Only intraop opioid MME had effect**
- No effect on discharge opioids with:
  - Length of surgery
  - Type of lumbar spine surgery
  - Surgeon
  - Prior opioids
  - Intraoperative ketamine
  - Pain score

Discussion

- Education had no effect on intraoperative opioid administration
- Intraoperative Opioid MME was associated with increased opioid MME
- Not yet able to see effect of feedback

Next Steps

- Monthly feedback reports
  - Anesthesia Team
  - Spine Surgeons
- Continued tests of change (PDSA)
- Effects on 30 day readmission
- Expand to Healthcare System

REFERENCES: Pain Res Manag 2019:1-12; Annals Surgery 2019; BJA 2018:120(5):1090

ELAM 2022 INSTITUTIONAL ACTION PROJECT (IAP) ABSTRACT

Minimizing Unnecessary Perioperative Opioid Use in Patients Receiving Lumbar Spine Surgery

Name: Anne Marie McKenzie-Brown, M.D.
Institution: Emory University School of Medicine, Department of Anesthesiology
Mentor: Penny Castellano, M.D. **Collaborator:** Grant Lynde, M.D., MBA
Primary Mission Area: Clinical

Background/Project Significance: Perioperative opioid administration is a potent and effective tool that is associated with short- and long-term consequences. Many patient's first opioid exposure is in the surgical setting. Acute opioid administration may result in respiratory depression, nausea, and postoperative ileus. Long-term opioid effects include substance use disorder, opioid overdose, and immune- and hormonal suppression. Postoperative opioid prescribing has increased over the past ten years, and unused opioids are a source of community diversion. This quality project examined the significant factors associated with perioperative opioids in patients receiving lumbar spine surgery at a single hospital. Effectiveness of clinician feedback, which has been used successfully in our department to increase intraoperative antibiotic and hyperglycemia compliance, will be examined in the future as part of this project.

Purpose: To evaluate perioperative opioid use in lumbar spine surgery at an academic hospital

Methods: This project received an IRB exemption for being a quality improvement project. The project focused on all lumbar spine surgeries performed at one academic hospital between September 1, 2021 and March 1, 2022. Tests of change included patient and provider education. A patient educational handout outlining opioid risks and benefits, in addition to alternatives to opioids, was collaboratively developed and distributed to patients by the spine surgeons prior to the day of surgery. A lecture on the effects of perioperative opioids was given to the Anesthesiology Team in December 2021 during their weekly lecture series. Discrete elements included for analysis included: the quantity of opioids given to patients perioperatively and pain scores. Student's t-test and stepwise regression analysis were performed as appropriate.

Outcomes/Results: The type and length of surgery, intraoperative adjuvants, and individual surgeon did not affect discharge opioid prescribing patterns. Education of the anesthesia team and pain scores were also not correlated with the amount of opioid tablets or morphine milliequivalent (MME) dose prescribed on discharge. Intraoperative opioid MME was the only variable associated with discharge opioid quantity.

Discussion/Conclusion: Commercial claims data shows that opioid naïve patients undergoing spine surgery are among the highest risk for transitioning to long-term opioid use after surgery. Neither the pain score, nor the type or extent of lumbar spine surgery influenced the amount of opioids prescribed at discharge. Given the significant adverse effects associated with long term opioids, effective strategies are needed to minimize unnecessary perioperative opioid prescribing. Education alone was not effective in reducing perioperative opioids. Our department has used clinician feedback to significantly increase intraoperative antibiotic dosing and hyperglycemia compliance. We will create and send a monthly feedback report to the anesthesia team on their comparative intraoperative opioid dose (morphine milligram equivalent (MME)) and to the surgeons on their comparative average MME and the number of pills on discharge. We will observe the effect of this test of change in reducing unnecessary perioperative opioids. Lessons learned from this project has the potential to affect opioid prescribing across institutional surgical specialties and may impact our future electronic prescription default settings as we look to implement a new electronic medical record system.