Changing the as-needed opioid medication order to reduce opioid consumption following cesarean delivery

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Objective

To evaluate the effect of reducing the dose amount and frequency of the standard as-needed opioid order on opioid consumption and analgesia at a single tertiary care center.

Methods

Study design

- Prospective, before-after cohort study at a single tertiary care institution, performed primarily for institutional QI
- Intervention took place May 1, 2019
- Women who underwent cesarean delivery in the 6 months pre-intervention (Nov 2018-April 2019) were compared to those from the 3 months post-intervention (May-July 2019)

Intervention

- Modification of the standard as-needed opioid order included in the post-cesarean orderset:

Oxycodone 5mg every 6 hours PRN

- No changes were made to standard non-opioid analgesics:
  - Acetaminophen 650mg every 6 hours
  - Ibuprofen 600mg every 6 hours (or ketorolac 30mg for the first 24 hours)

Primary outcome

- Proportion of patients using > 30 mg of oxycodone in the 24 hours prior to discharge

Secondary outcomes

- Proportion of patients with pain score > 4/10 (moderate pain)
- Proportion of patient with pain score > 7/10 (severe pain)
- Mean postoperative pain scores
- Length of hospital stay

Results

- Use of > 30mg of oxycodone in the 24 hours before discharge:
  - 15.2% (66/434) pre-intervention group
  - 5.2% (15/290) post-intervention group
- No differences found in pain scores or hospital length of stay

Discussion

Changing the availability of as-needed oxycodone reduced the number of women requiring > 30mg of oxycodone in the 24 hours prior to discharge without an increase in pain scores. A multimodal regimen of scheduled acetaminophen and NSAIDs is effective for cesarean analgesia with low opioid requirements.

After reducing the dosing amount and frequency of the standard oxycodone order after cesarean delivery, **patients used less oxycodone without any increase in reported pain.**

Tables & Figures

Figure 1. Opioid consumption before and after modification of the post-cesarean order set

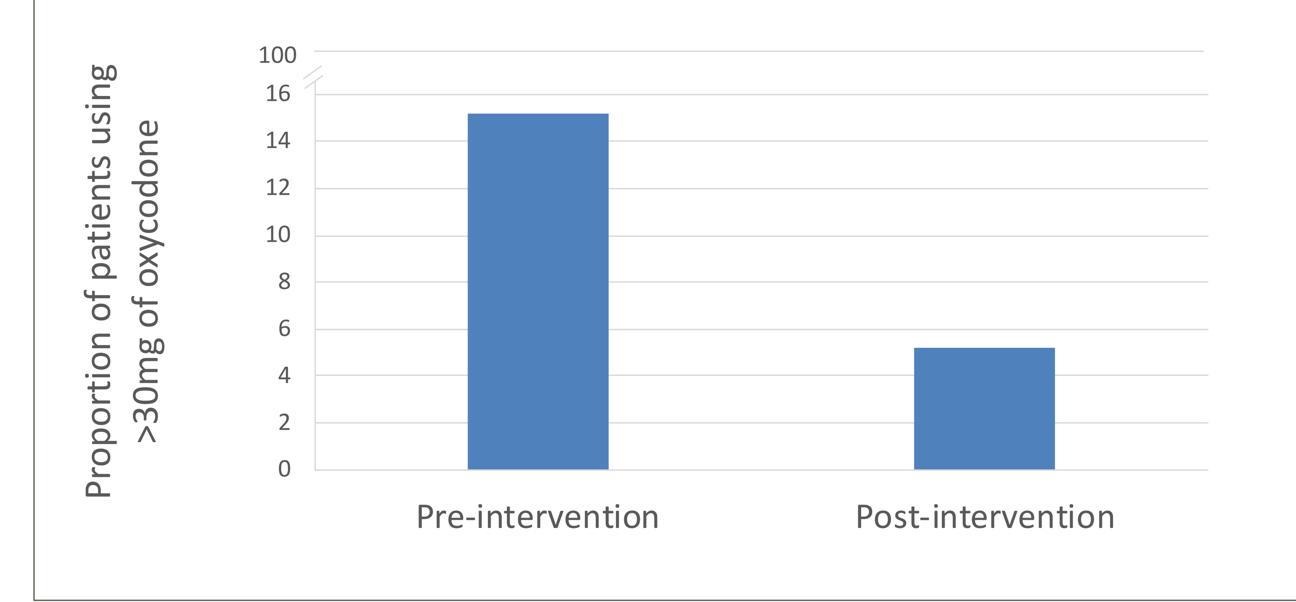

Table 1. Opioid consumption and analgesia before and after modification of the post-cesarean order set

Primary & Secondary Outcomes	Pre-Intervention n=434	Post-Intervention n=290
Oxycodone use >30mg last 24 hrs, n (%)	66 (15.2)*	15 (5.2)
Oxycodone use >20mg last 24 hrs, n (%)	132 (30.5)*	52 (18.0)
Oxycodone total last 24 hours (mg), median (IQR)	5 (0, 20)	5 (0, 15)
At least 1 pain score > 4 (moderate pain) last 24 hours, n (%)	355 (81.8)	240 (82.8)
At least 1 pain score > 7 (severe pain) last 24 hours, n (%)	200 (46.1)	125 (43.1)
Average pain score during hospitalization, mean (SD)	2.8 (1.6)	2.7 (1.6)

*p<0.05

Appendix 1. Detailed Pain Protocol

ALL POST-CESAREAN PATIENTS (unless contraindicated)
- Ibuprofen 600mg Q6 hours (option for ketorolac 30mg for first 24 hours)
- Acetaminophen 650mg Q6 hours (first dose is 1000mg)

PRNs FOR THE "STANDARD" PATIENT WHO RECEIVED NEURAXIAL OPIOID
- Oxycodone 5mg Q6 hours prn
- Lidocaine patch 1-2 patches placed on the abdomen

PRNs FOR PATIENTS WHO RECEIVED GENERAL ANESTHESIA
- Consider truncal block +/- exparel
- Fentanyl 25mcg Q5 mins max dose 200mcg in PACU
- Consider long-acting morphine or hydromorphone prn in PACU
- Oxycodone 5-10mg Q6 hours prn (PACU and post-op)
- If pain is inadequately controlled in PACU requiring multiple boluses of IV opioids, discontinue all prn opioids and place patient on opioid PCA (morphine or hydromorphone). Evaluate PCA use at 12-24 hours and transition off PCA.

CHRONIC OPIOID USERS OR OPIOID REPLACEMENT THERAPY
- Consider increasing neuraxial opioid dose
- Discuss truncal blocks with patient for postoperative pain management
- Oxycodone 5-10mg Q4-6 hours as needed (dosing interval individualized based on provider discretion)

INADEQUATE PAIN CONTROL
- Consider rescue truncal blocks +/- exparel
- Ensure non-opioids maximized (NSAIDs, acetaminophen, lidocaine patch)
- Increase oxycodone dose to oxycodone 5-10mg q6 hours
- Increase oxycodone frequency oxycodone 5-10mg q4 hours
- Consider adding additional as-needed NSAID (ibuprofen 200mg Q6 hours)
- Consider alternate oral opioid (hydromorphone 2-4mg q4 hours prn)

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