24-hour Oral Morphine Equivalent Based Opioid Prescribing After Surgery—A Pilot Randomized Clinical Trial

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BACKGROUND

- Cesarean section is the most common major operating room procedure performed in the US, with 1.2 million performed in 2018, which accounts for 32% of all births [1].
- Opioids are commonly prescribed as the primary mode of analgesia to women following childbirth, providing an opportunity for meaningful intervention to reduce excess opioid prescriptions.
- We have previously shown that 83% of patients following Cesarean section report taking half or less of opioids prescribed, with 77% of those opioids stored in unlocked locations [2].
- Effective strategies to maximize non-opioid pain therapy and to limit the pool of unused opioids in the community are lacking.
- In-hospital opioid use 24 hours prior to discharge serves as a strong indicator to correctly estimate needs for analgesic medications at home [3].

AIM: Basing on-discharge analgesic prescriptions on pre-discharge use recorded in the electronic medical record would reduce the amount of opioid medications prescribed while maintaining adequate post-operative pain control.

METHODS

- COMIRB Protocol 18-2098, NIH Grant K23DA040923
- 55 female inpatients at a single tertiary hospital who underwent Cesarean section were randomized into two groups: prescription as usual and prescription per best practice alert (BPA)
- Eligibility: 24-hour before-discharge opioid intake of 22.5 milligram morphine equivalents (MME)–the equivalent of 3 oxycodone 5 milligram tablets or less. Those who completed at least one survey were included in the analysis.

Arm 1: Prescription as Usual (n = 23)

Consider prescribing the usual medications for pain management after discharge

Arm 2: Prescription Best Practice Alert Tool (n = 22)

Consider prescribing no opioids for patients who did not take any opioids in the 24 hours before discharge

Consider prescribing 10 oxycodone 5mg tablets [75 MME] for patients having taken 22.5 MME or less in the 24 hours before discharge

Final medication choices and dosing decisions remained at the discretion of the treating provider

Surveys were administered to patients for each of the 4 weeks following discharge

- NIH PROMIS Pain Intensity and Pain Interference
- Amount of opioids taken
- Amount of left-over opioids
- Intake of other pain medications
- Storage and disposal of opioids
- Need for additional opioids

RESULTS

Primary Outcome: There was no difference in the amount of opioids prescribed on discharge between the intervention group compared to the control group.

Arm 1: Prescription as Usual
55.3 MMEs, SD 37.1

P = 0.65

Arm 2: Prescription BPA Tool
62.8 MMEs, SD 32.8

Secondary Outcomes:

- Predischarge, the majority of patients took NSAIDs (92.5 vs 100%) and 100% of patients took acetaminophen
- In the 4 weeks following discharge, patients continued to take NSAIDs (77.8 to 21.4%) and acetaminophen (82.2 to 21.4%)
- By week 4, 50% of patients reported having left over opioid pills
- 1 patient received an additional opioid prescription following discharge

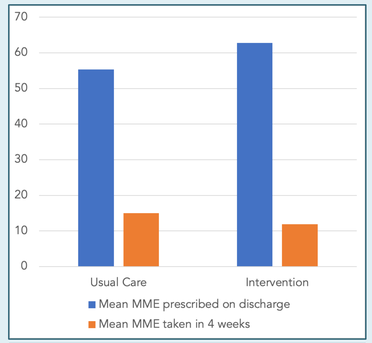


Figure 1. Mean MME Taken in 4 Weeks Compared to Mean MME Prescribed on Discharge

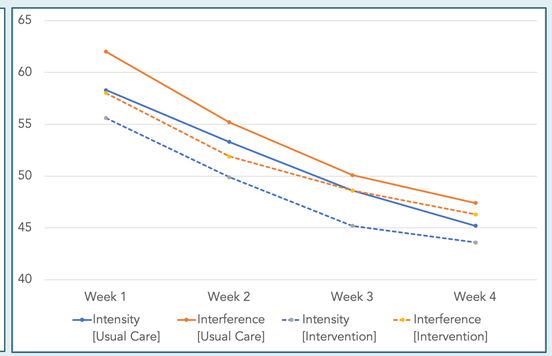
In the 4 weeks following discharge, patients took a lower amount of opioids (15.0 vs 11.9 MMEs, p = 0.807) than what they were prescribed on discharge (55.3 vs 62.8 MMEs).

Figure 2. PROMIS Pain Intensity and Pain Interference T-Scores Over 4 Weeks

Both PROMIS Pain Intensity and Interference scores decreased in each group over 4 weeks.

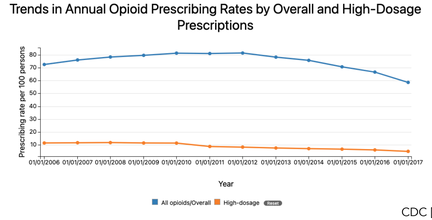
Intensity (Usual Care): 58.3 to 45.2
Intensity (Intervention): 55.6 to 43.6
Interference (Usual Care): 62.0 to 47.4
Interference (Intervention): 58.0 to 46.3

A T score of 50 is the average for the US general population [4].



DISCUSSION

- Shortly after design and approval of this study, our labor and delivery ward instituted a protocol based on current recommendations for appropriate opioid prescribing on discharge and the use of multimodal analgesia including NSAIDs and acetaminophen. The impact of this quality improvement project is reflected by our findings.



CDC [5]

- Even at the current, more conservative level of opioid prescribing, a large proportion of leftover opioids were reported.
- The fact that only one patient required an additional opioid prescription following discharge points to the fact that historic opioid prescribing was simply overgenerous.
- In a similar study, Osmundson et al. randomized 172 women to standard opioid prescription (30 tablets of 5mg oxycodone) to an individualized prescription (based on inpatient use). Not only were patients in the individualized group discharged with about half the number of opioid tablets (14 vs 30), they also had 50% fewer unused opioid tablets two weeks post-discharge (5 vs 10) with no differences in self-reported pain between the two groups [6].
- **Limitations**: In conjunction with our small sample size, the institutional opioid use patterns changed dramatically during the planning and conduct phase of the trial. Hence, our study might have been underpowered to detect a difference in an individualized approach to limiting opioid prescriptions.

CONFLICTS

- The authors have no conflicts of interest

ACKNOWLEDGEMENTS

- I would like to thank Dr. Karsten Bartels for his mentorship, the CU OB/GYN department for their active involvement, and the NIH for funding this project.

CONCLUSIONS

- Based on our data, an individualized opioid prescribing approach was not superior to an opioid limiting multimodal one-size-fits all regimen in a homogenous surgical population.
- Further research is needed to determine the optimal approach to limiting excess opioid prescriptions while maintaining adequate post-operative analgesia.

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