Factors associated with no in-hospital opioid use after cesarean delivery and the relationship between in-hospital opioid use and opioid use after discharge

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PACT trial

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Optimizing Opioid Prescription Quantity After Cesarean Delivery: A Randomized Controlled Trial

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Individualized opioid prescription and shared decision-making was non-inferior to fixed opioid prescription (20 tablets) 1-week post-discharge and resulted in fewer prescribed opioid tablets at discharge.

MFMU Maternal-Fetal Medicine Units Network

Objectives

1. To determine whether patients who did not use any systemic opioids after cesarean delivery (in-hospital MME = 0) can be safely discharged home without an opioid prescription.
2. To identify the subset of patients who took no opioids immediately post-cesarean and evaluate if there are patient, obstetric, anesthesia-specific factors associated with "no opioid use", compared with patients who took opioids post-cesarean.

Methods

- Secondary analysis of a multicenter RCT in patients with CD at 31 U.S. hospitals (n=5155, 2020-22).
- IOPP vs. fixed quantity of opioid tablets at discharge
- Participants were categorized into one of two groups based on opioid use, with MME=0 indicating no in-hospital opioid use.
- The exposure was no in-hospital opioid use (morphine milligram equivalents [MME] = 0).
- Primary outcome: post-discharge MME = 0 up to 90 days.

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- In-hospital MME = 0 rate was 19% (n = 1,023)
- Post-discharge MME = 0 rate was 34% (n = 1,752)
- Overall, 717 participants (13..2%) did not use any opioids post-cesarean with no difference between IOPP vs control (13.9% vs. 12.6%; p=0.15)
- Of those with in-hospital MME=0, 76% used none post-discharge, though 54% filled an opioid prescription at or after discharge

In-hospital MME=0 was associated with:

- Lower post-discharge opioid use
- Higher odds of post-discharge MME = 0 (OR 9.8, CI 8.3, 11.5)
- Lower post-discharge median MME dose (0 vs. 7)

With post-discharge MME=0:

- The proportion of participants with moderate to severe pain was significantly lower at 1 week (42% vs. 70%), 2 weeks (20% vs. 38%), and 6 weeks (6% vs. 14%, all $p < 0.001$).

- On multivariable analysis, Black race, government insurance, anxiety/depression, and preterm birth were associated with decreased odds for MME=0.
- Participants with BPI ≥ 4 or PCS ≥ 13 were more likely to use opioids
- Hispanic ethnicity, spinal or CSE anesthesia, and neuraxial morphine administration were associated with increased odds for MME=0.

Results (MME = 0)

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- In the IOPP group, the number of requested pills was significantly higher than the recommended number, even among patients with no post-discharge opioid use (Table 1).
- In patients with post-discharge MME=0, the IOPP recommendation for 0 pills occurred in 67.2% of cases.
- The proportion of patients not taking opioids after discharge was 76% when they did not use any in-hospital (18.8% of participants).
- In-hospital opioid use was associated with opioid use after discharge in 75% of participants.
- *IOPP recommendation for 0-10 opioid pills for patients with no post-discharge use was on target in 86% of cases.*

Table 1. Recommended vs. requested number of pills in the IOPP group, according to post-discharge opioid use (N=2,537)

Opioid pills	Recommended (IOPP)		Prescribed (requested by patient after IOPP)	
Number	Post-discharge MME=0	Post-discharge MME > 0	Post-discharge MME=0	Post-discharge MME > 0
0	N=624 (67.2%)	N=227 (14.1%)	N=240 (25.9%)	N=2 (0.12%)
1-5	N=108 (11.6%)	N=193 (12.0%)	N=228 (24.5%)	N=116 (7.2%)
6-10	N=65 (7.0%)	N=188 (11.7%)	N=219 (23.6%)	N=314 (19.5%)
11-15	N=55 (5.92%)	N=202 (12.5%)	N=88 (9.5%)	N=242 (15.0%)
16-19	N=27 (2.9%)	N=210 (13.0%)	N=17 (1.8%)	N=101 (6.3%)
20	N=50 (5.4%)	N=591 (36.7%)	N=136 (14.7%)	N=834 (51.8%)

MME, morphine milliequivalent
IOPP, Individualized Opioid Prescription Protocol.

Post-discharge MME=0: patients not taking any opioids *from discharge to 6 weeks post-discharge*
IOPP recommendation: based on in-hospital opioid use in the last 24 hours before discharge

Results (how well did IOPP perform?)

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In the IOPP group, the number of requested pills was significantly higher than the recommended number

In-hospital opioid use can guide opioid prescription at discharge, as most patients who did not use any opioids also never took any opioids after discharge (despite filling a prescription), without experiencing more severe pain.

In-hospital opioid use can be predicted by patient- and anesthesia-specific factors, with anxiety, depression, preterm birth, and no spinal morphine increasing opioid use.

Discussion