



INTRAVENOUS METHADONE VS. INTRAVENOUS HYDROMORPHONE FOR CESAREAN DELIVERY ANALGESIA UNDER GENERAL ANESTHESIA: A RETROSPECTIVE STUDY

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BACKGROUND

- Methadone is a mu-opioid receptor agonist, a non-competitive NMDA antagonist, and prevents the reuptake of 5-HT and noradrenaline. ¹
- IV methadone provides effective analgesia with an acceptable side effect profile after general anesthesia. ²
- Current enhanced recovery practices do not include methadone.

HYPOTHESIS

- There will be a decrease in opioid requirement at **0-48 hours** after cesarean delivery performed under general anesthesia in patients who received intraoperative IV methadone compared to IV hydromorphone.



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2. Russell T. *Int J Obstet Anesth.*

2013;22(1):47-51.



STUDY DESIGN & METHODS

- Retrospective cohort study of patients who underwent CD under GA between January 1, 2023, through December 31, 2025.
- Inclusion criteria: Receipt of IV methadone or IV hydromorphone.
- Exclusion criteria:
 - Administration of neuraxial morphine
 - History of chronic pain, opioid use >30 OME/day, or substance use disorder
 - Hysterectomy, additional surgical procedures within 48 hours after delivery, or prolonged intubation >12 hours post-procedure
 - Stillbirth
- Primary outcome was oral morphine equivalents (OME) at 0-48 hours postdelivery.
- A sensitivity analysis was conducted using multivariable linear regression to assess differences in the outcome after adjusting for administration of a TAP block.

RESULTS

- Demographic and OB characteristics were similar
- Maximum PACU pain scores (p = 0.003)
 - **3.23±2.7** in methadone group
 - **6.63±2.48** in the hydromorphone group
- No significant adverse effects occurred in either group

	Methadone (n=13)	Hydromorphone (n=34)	β (95% CI)	P Value
PACU				
Max pain score	3.23±3.27	6.63±2.48	-3.21 (-5.30 to -1.12)	0.003*
Opioid consumption in morphine equivalents (mg)	5.19±7.74	16.23±20.65	-7.53 (-20.77 to 5.70)	0.258
Post-PACU to 24h				
Max pain score	5.15±2.41	6.50±1.97	-1.17 (-2.71 to 0.37)	0.134
Opioid consumption in morphine equivalents (mg)	14.42±23.41	36.51±50.34	-24.42 (-57.60 to 8.76)	0.145
24-48h				
Worst pain score	6.15±1.86	6.28±1.99	-0.26 (-1.69 to 1.18)	0.722
Opioid consumption in morphine equivalents (mg)	27.12±29.45	31.36±25.77	-6.60 (-26.42 to 13.23)	0.506
Total				
Opioid consumption in morphine equivalents	46.73±54.61	84.10±79.99	-38.55 (-93.51 to 16.41)	0.165

Linear regression analysis was conducted while adjusting for administration of TAP block.

CONCLUSION & DISCUSSION



- No statistical difference in OME 0-48 hours between groups.
- Significant decrease in PACU max pain score in the methadone group.
- This study may be underpowered to detect longer-term differences beyond the PACU, including at 48 hours postoperatively.
- Further studies are needed to determine the optimum postoperative analgesic regimen in parturients requiring general anesthesia for cesarean delivery.