

- Pain during cesarean delivery: a patient-related outcome study assessing the incidence and risk factors for pain and intravenous medication during cesarean delivery

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Background:

- Incidence of pain **during** cesarean delivery (PDCD) remains unclear (up to 20%)
- Often defined by interventions: neuraxial replacement, unplanned IV adjuvants, conversion to general anesthesia
- Few studies have assessed PDCD using self-reported pain, gold standard for pain

Methods:

- Post-partum survey about intraoperative anesthesia care (05/2022 – 09/2022)
- All English-speaking patients with cesarean deliveries under neuraxial anesthesia approached
- Clinical data & IV adjuvants abstracted from the EMR (Epic)
- Excluded cases: fetal/neonatal demise, unplanned intra-operative hysterectomy, general anesthesia only

Results

- N= 403 cesarean deliveries

Self-Reported Pain: N=46/403 (11.5%)

Risk Factors for Pain:

- substance use disorder ($p < 0.001$)
- epidural anesthesia ($p = 0.020$)

Unplanned IV adjuvants: N=127/403 (31.5%)

Analgesic Adjuvants: N=67/403 (16.6%)

Risk Factors for IV adjuvants:

- self-reported pain ($p < 0.001$)
- unplanned CD ($p = 0.011$)
- longer surgical duration ($p = 0.026$)
- epidural anesthesia with 2 or more top-ups ($p = 0.008$)

	All women N=403*	No pain N=353	Pain N=46	P-value
Intravenous medications administration	127 (31.5%)	98 (77.2%)	29 (22.8%)	<0.001
Intravenous medications (IVM)				0.453
Midazolam only (Group 1)	21 (5.2%)	17 (80.9%)	4 (19.0%)	
Opioids only	32 (7.9%)	25 (78.1%)	7 (21.9%)	
Ketamine only	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Dexmedetomidine only	23 (5.7%)	19 (82.6%)	4 (17.4%)	
Analgesic combination (Group 2)	35 (8.7%)	23 (65.7%)	12 (34.3%)	
Non-analgesic adjuvants (Group 3)	16 (4.0%)	14 (87.5%)	2 (12.5%)	
Conversion to general anesthesia	7 (1.7%)	4 (57.1%)	3 (42.9%)	0.036
Total analgesic medication administration (Opioid only + Analgesic combination)	67 (16.6%)	48 (71.6%)	19 (28.4%)	<0.001

Descriptive data about intravenous medication overall and its administration in women with or without self-reported pain

*4 patients did not respond to the survey question on pain.

•Analgesic combination (Group 2): midazolam, fentanyl, morphine, hydromorphone, ketamine, dexmedetomidine, and any combinations of these (as long as midazolam or dexmedetomidine were not given alone because midazolam alone is given for anxiolysis and dexmedetomidine alone is given for shivering)

•Non-analgesic adjuvants (Group 3): include nalbuphine (given for itching), diphenhydramine (given for itching), or propofol (given for intractable nausea/vomiting)

Key Points

- Incidence of self-reported pain (11.5%), lower than previously reported for scheduled cases
- Rate of unplanned analgesic adjuvants (16.6%), suggests IV adjuvants are likely given with appropriate clinical indications
- Labor epidural analgesia → cesarean epidural anesthesia associated with both self-reported pain and unplanned IV adjuvants
- **Future Studies:** more predictors of PDCD & strategies to optimize intraoperative pain medication