Is cesarean delivery during the second stage of labor associated with increased requirements for sedation and intravenous analgesia?

Hajjar C, Keasler P, Vu T, Van Cleve W, Delgado C

- Pain during cesarean delivery (CD) occurs in up to 15% of cases, contributes to post-traumatic stress disorder, and is a leading cause of litigation against obstetric anesthesiologists
- Effective epidural conversion to surgical anesthesia is key to minimizing general anesthesia (GA) use
- Second-stage CD leads to longer operative times and higher intraoperative risks (uterine atony, hysterotomy extensions, and cystotomy)

Do anesthetic needs for patients with an indwelling epidural during second-stage CD differ from those in the first stage of labor?

Study Design and Methods

- We analyzed data from all intra-partum CD patients with pre-existing epidurals at our referral center (2022–2024)
- Maternal demographics
- Obstetric factors
- Anesthetic interventions: neuraxial technique, block duration, epidural top-ups, IV analgesics and sedatives, conversion to general anesthesia
- Data were stratified by labor stage at CD
- Continuous variables were reported as median (IQR), categorical as frequency (percent)

Results

- n = 968
- Second stage CD = 26%
- No differences in demographic or obstetric outcomes

Characteristic	First Stage N = 714[1]	Second Stage N = 254[1]
In Room to Procedure Start (min)	23 (19, 29)	24 (20, 30)
Use of IV Analgesics	204 (29%)	87 (34%)
Use of IV Sedatives	138 (19%)	61 (24%)
Requirement for General Anesthesia	65 (9.1%)	27 (11%)
Hysterotomy Extension Incurred	145 (20%)	111 (44%)

[1] Median (Q1, Q3); n (%)

	Quartile of Block Duration			
Characteristic	1 N = 242[1]	2 N = 242[1]	3 N = 242[1]	4 N = 242[1]
In Room to Procedure Start (min)	20 (15, 26)	23 (19, 27)	24 (20, 30)	26 (22, 32)
Use of IV Analgesics	55 (23%)	67 (28%)	80 (33%)	89 (37%)
Use of IV Sedatives	44 (18%)	44 (18%)	49 (20%)	62 (26%)
Requirement for General Anesthesia	23 (9.5%)	19 (7.9%)	25 (10%)	25 (10%)
Hysterotomy Extension Incurred	39 (16%)	65 (27%)	80 (33%)	72 (30%)

[1] Median (Q1, Q3); n (%)

Conclusions

- In our sample of patients with pre-existing epidurals undergoing CD, labor stage did not impact use of IV analgesia, sedation, or GA conversion rates
- Prolonged neuraxial analgesia correlated with increased intraoperative IV sedation and analgesia use: epidural catheter migration, epidural tissue edema, local anesthetic tachyphylaxis, maternal exhaustion, etc.
- Limitations: reasoning for clinical decision-making, pain scores and decision to administer a specific type of medication was not reported; e.g. dexmedetomidine for shivering/anxiolysis/pain
- Given the psychological and medicolegal risks of intraoperative pain, obstetric anesthesiologists must proactively mitigate these issues:
  - Frequent assessments, top-up monitoring, early replacement consideration, and shared decision-making
- While our GA conversion rate exceeds published benchmarks, ***patient comfort remains the priority***