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

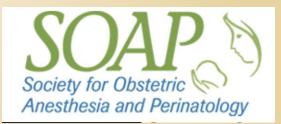
- Pain during cesarean delivery (CD) occurs in up to 15% of cases, contributes to post-traumatic stress disorder, and is a leading cause of litigation against obstetric anesthesiologists
- Effective epidural conversion to surgical anesthesia is key to minimizing general anesthesia (GA) use
- Second-stage 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 topups, 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 | Second Stage $N = 254^7$ |
|-------------------------------------|------------------------|--------------------------|
| 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 (%) | | |

| Characteristic | Quartile of Block Duration | | | |
|--|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| | 1 N = 242 ¹ | 2 N = 242 ¹ | 3 N = 242 ¹ | 4 N = 242 ¹ |
| n Room to Procedure Start (min) | 20 (15, 26) | 23 (19, 27) | 24 (20, 30) | 26 (22, 32) |
| Jse of IV Analgesics | 55 (23%) | 67 (28%) | 80 (33%) | 89 (37%) |
| Jse 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%) |
| Hysterotomy Extension Incurred Median (Q1, Q3); n (%) | 39 (16%) | 65 (27%) | | 80 (33%) |



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*

