Optimizing Anesthetic Practice for Cervical Cerclage

A Quality Improvement Study

Cecilia Uong, MD, Samantha Armstrong, BS, Nathaniel Greenbaum, MD, Phil Hess, MD, Yunping Li, MD
Dept of Anesthesia, Critical Care and Pain Medicine, Beth Israel Deaconess Medical Center

BACKGROUND

- Spinal anesthesia (SP) is the preferred anesthetic for cervical cerclage
- SP failure rates vary from <1% to as high as 17% and occur due to many reasons

HYPOTHESIS

There are modifiable factors that may be associated with SP failure. Identification of these factors can be used to optimize local practice and rates of SP success

Beth Israel Lahey Health

Beth Israel Deaconess Medical Center

HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

Study Design and Methods

Beth Israel Deaconess Medical Center

HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

Methods

Retrospective review of all cerclage placements between June 2024 and July 2025

Primary Outcome: Failed spinal anesthesia

- ❑ Repeat spinal placement
- ❑ Deep sedation (Propofol 100 mcg/kg/min or 100mcg IV fentanyl)
- ❑ Conversion to GA

Factors Studied

- ❑ Provider type (solo v. team)
- ❑ Patient factors
- ❑ Local anesthetic and adjuncts
- ❑ Duration of surgery

Results

Failed spinal	**18 (19%)**
Required replacement	1 (1.1%)
Deep sedation	10 (10.8%)
Conversion to GA	7 (7.5%)

Factor		Success (n=75)	SP failure (n=18)	P-Value
Age (y)		34.1 ± 4.3	31.6 ± 4.7	**0.03**
BMI		31.1 ± 7.3	32.3 ± 7.5	0.54
Gestational age (weeks)		18.2 ± 4.2	19.9 ± 3.4	0.79
Race	White	46 (80.7%)	11 (19.3%)	0.99
	All others	29 (80.9%)	7 (19.4%)	
Ethnicity	Hispanic	14 (70%)	6 (30%)	0.20
	Non-Hispanic	58 (82.9%)	12 (17.1%)	
Staff	OB trained	21 (87.5%)	3 (12.5%)	0.39
	Generalist	54 (78.3%)	15 (21.7)	
Supervision	Solo	24 (80%)	6 (20%)	0.60
	Resident	16 (88.9%)	2 (11.1%)	
	CRNA	35 (77.8%)	10 (22.2%)	
Time of day	Workday	62 (81.6%)	14 (18.4%)	0.73
	Off-Hours	13 (76.5%)	4 (23.5%)	
Local anesthetic	Bupivacaine 0.75%	67 (84.8%)	12 (15.2%)	**0.015**
	Bupivacaine 0.5%	2 (50%)	2 (50%)	
	Chloroprocaine 3%	3 (100%)	0 (0%)	
	undocumented	3 (42.9%)	4 (57.1%)	
Intrathecal fentanyl	No	65 (79.3%)	17 (20.7%)	0.84
	Yes	10 (90.9%)	1 (9.1%)	
Surgical duration (min)		65.1 ± 19.8	81.2 ± 31.8	**0.009**

Conclusion and Discussion

- Spinal is the choice of anesthetic for cerclage
- Establish standard guideline
  - Hyperbaric bupivacaine (sacral coverage)
  - Intrathecal fentanyl (15-20 mcg) (visceral discomfort)
  - Standardized doses and needles (no cutting or 22 gauge)
- Call for help if there is difficulty
- Discourage use of high dose propofol infusion with opioids due to risk of aspiration