Trends in Neuraxial Dosing for Cervical Cerclage at a Large Academic Medical Center

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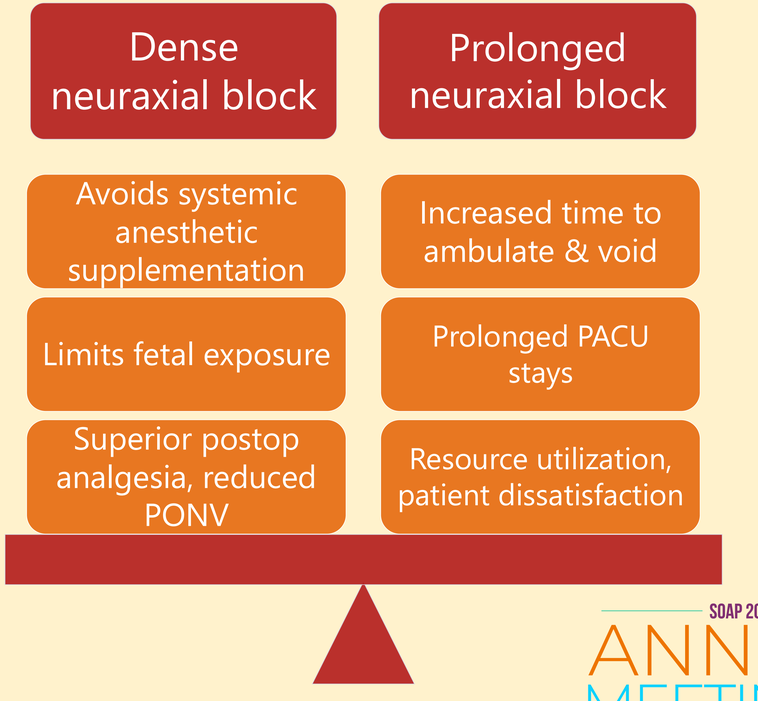
Background

- Cervical cerclage is a short ambulatory procedure commonly performed under spinal anesthesia
- Optimal neuraxial dosing remains a challenge: necessity for dense blockade vs. desire for rapid postoperative resolution
- Previous studies have suggested intrathecal 2-chloroprocaine 3% provides similarly effective surgical anesthesia with faster time to discharge compared to hyperbaric bupivacaine 0.75%[1,2]
- Cerclage procedures are less commonly performed, lack of standardized dosing guidelines
- As the initial step of a QI project, we analyzed current trends in neuraxial dosing within our department



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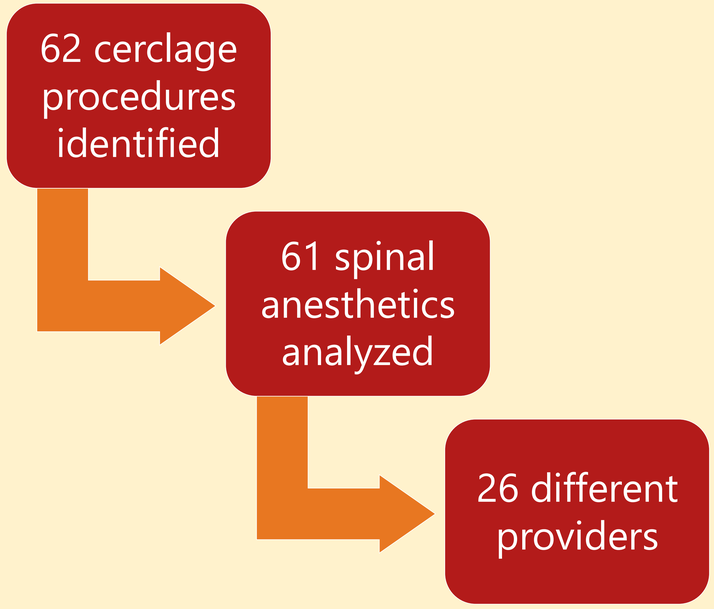
Study Design & Methods

- Retrospective, descriptive analysis
- Analyzed anesthetic record of every cerclage procedure performed at our institution between January 1, 2025 and December 31, 2025
  - Local anesthetic type and dose
  - Use of intrathecal adjuncts
  - Use of anesthetic supplementation
  - Time to readiness for discharge*
  - Time to actual discharge

*time of post-anesthesia evaluation used as surrogate marker



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Results

Table 1.

	Cases (n=61)			
Local anesthetic type[a]	**Hyperbaric bupivacaine 0.75%** 90.2% (55/61)		**2-Chloroprocaine 3%** 9.8% (6/61)	
Local anesthetic dose[a]	**Low dose (≤ 7.5mg)** 47.3% (26/55)	**High dose (> 7.5mg)** 52.7% (29/55)	**Low dose (≤ 50mg)** 50% (3/6)	**High dose (> 50mg)** 50% (3/6)
Use of intrathecal opioid adjunct[a]	88.5% (23/26)	100% (29/29)	33.3% (1/3)	66.6% (2/3)
Use of anesthetic supplementation[a]	19.2% (5/26)	10.3% (3/29)	66.6% (2/3)	0% (0/3)
Time to readiness for discharge (minutes)[b]	257 [239-316]	272 [235-347]	120 [109-125]*	187 [167-264]
Time to actual discharge (minutes)[b]	292 [272-371]	324 [273-392]	172 [150-185] †	287 [226-331]

[a]Counts summarized as percentages and frequences. [b]Time values represent median [interquartile range].
*Kruskal-Wallis testing identified a statistically significant difference between groups, (p=0.018). Post-hoc Dunn pairwise comparisons with Holm correction demonstrated significantly shorter times in the low-dose chloroprocaine group compared to low-dose (p=0.035) and high-dose (p=0.015) bupivacaine groups.‡
† Kruskal-Wallis testing identified a statistically significant difference between groups, (p=0.033). Post-hoc Dunn pairwise comparisons with Holm correction demonstrated significantly shorter times in the low-dose chloroprocaine group compared to the high-dose bupivacaine group (p=0.024).‡
‡Statistical significant here should be interpreted as exploratory rather than definitive due to very small sample sizes in chloroprocaine groups.

- Mean (SD) surgical time was 19.7 (9.5) minutes
- Supplementation
  - Bupi: one failed spinal converted to GA, remainder used modest doses IV fentanyl or versed (all cases used intrathecal opioids)
  - Chloro: 2 cases used nitrous (neither case used intrathecal opioids)
- Mean (SD) time from discharge readiness to actual discharge was 49.4 (47.8) minutes

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Discussion & Conclusion

- Despite representation from 26 different providers and no established departmental guidelines, dosing was relatively uniform
- Conclusions about statistically significant differences between groups were limited by very small group sizes
  - While recovery times may have been faster in the low-dose chloroprocaine group, 2/3 cases used nitrous oxide
  - A recent study suggested the ED90 of chloroprocaine is closer to 60mg.[2] Next steps should explore recovery times and rates of supplementation at this dose
- Documentation regarding return of motor function and ability to void was largely absent
  - Improvements in this process are needed to characterize reasons for prolonged recovery times
- There was a significant delay from discharge readiness to actual discharge, which needs to be explored further
  - Tailoring an anesthetic to avoid prolonged recovery may have no impact on actual outcome if non-anesthetic factors are delaying discharge

References

1. Lee A, Shatil B, Landau R, Menon P, Smiley R. Intrathecal 2-Chloroprocaine 3% Versus Hyperbaric Bupivacaine 0.75% for Cervical Cerclage: A Double-Blind Randomized Controlled Trial. *Anesth Analg*. 2022;134(3):624-632.
2. Hallmark AK, McCarthy RJ, Stetson BT, Banayan JM. Spinal chloroprocaine versus bupivacaine without opioid adjuvant for transvaginal cervical cerclage placement: a pragmatic retrospective cohort study (2018-2023). Int J Obstet Anesth. 2025;61:104323.