

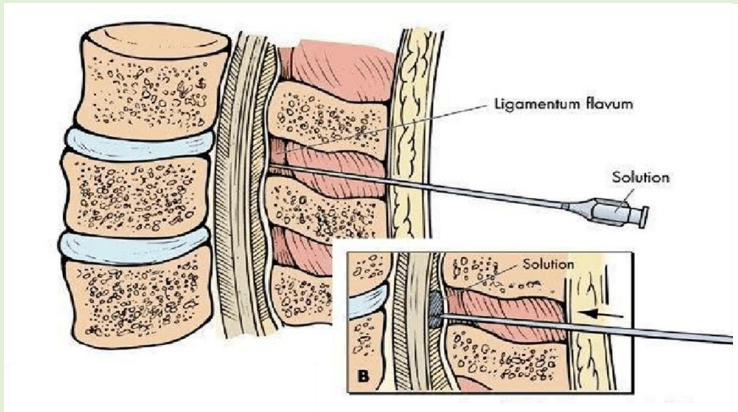
# Efficacy and safety of dexmedetomidine or sufentanil in combination with ropivacaine with dural puncture epidural technique for labor analgesia

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## Background

- Dural puncture epidural (DPE) technique provides superior labor analgesia compared to traditional epidural technique.<sup>[1]</sup>
- Dexmedetomidine use as an adjuvant to ropivacaine in epidural labor analgesia has been proven to offer effective pain relief.<sup>[2]</sup>
- This randomized study was conducted to compare the efficacy and safety of dexmedetomidine or sufentanil in combination with ropivacaine with the DPE technique for labor analgesia.



## Methods

- Randomized double-blinded study
- 25G Whitacre needle used for DPE technique
- Primary outcome: time to adequate analgesia was defined as a VAS score  $\leq 3$  during two consecutive contractions
- Secondary outcomes: VAS scores, ropivacaine consumption, Ramsay sedation scale (RSS), anesthesia satisfaction score, side effects, neonatal outcomes, and obstetric outcomes.
- Groups and pump parameter

### Dexmedetomidine group ( Group D)

-Initiated with 10 mL of 0.08% ropivacaine and 0.4  $\mu$ g/mL of sufentanil

### Sufentanil group (Group S)

-Initiated with 10 mL of 0.08% ropivacaine and 0.4  $\mu$ g/mL of dexmedetomidine

- Maintenance with PIEB (8ml every 60 min)
- PCEA (8ml/push, lockout interval 20min)
- Breakthrough pain (5 mL boluses of 0.1% ropivacaine)

# Results

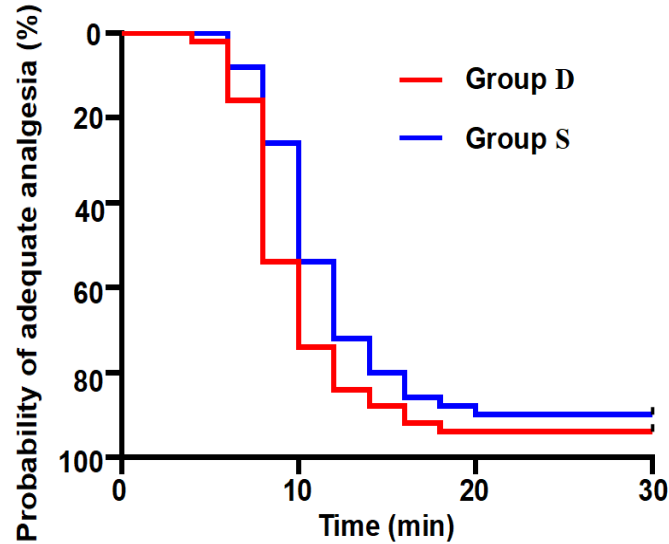


Fig 1 Kaplan–Meier curves for time to adequate analgesia

Adequate anesthesia was achieved faster in Group D than Group S (hazard ratio = 1.440; 95% confidence interval [CI], 0.9517–2.178;  $P = 0.035$ ).

Table 1 Secondary outcomes

	Group D (n=50)	Group S (n=50)	<i>P</i>
Labor, first stage (min)	369 ± 69	405 ± 77	0.022
Labor, second stage (min)	43 (37.49)	42 (37.43)	0.183
RSS	2 (2,3)	2 (2,2)	0.011
Pruritus	1 (2%)	6 (12%)	0.117
Nausea or vomiting	2 (2.5%)	7 (14%)	0.162
Hypotension	2 (4%)	4 (8%)	0.674
Maternal bradycardia	3 (6%)	1 (2%)	0.610
Fetal bradycardia	5 (10%)	2 (4%)	0.433
Satisfaction score	10 (9,10)	9 (8,10)	0.039

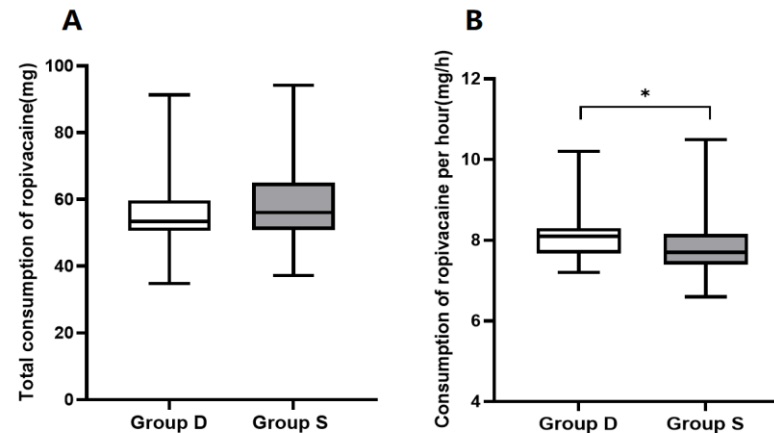


Fig 2 Consumption of ropivacaine in the two groups.

## Study limitations

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Since contraction frequency varies among patients and VAS scores rely on self-reports, this introduces potential inaccuracies in evaluating analgesic efficacy.

## Conclusions

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- In labor analgesia using the DPE technique, the combination of dexmedetomidine and ropivacaine provided rapid pain relief, shortened the first stage of labor, and increased patient satisfaction compared to sufentanil and ropivacaine.
- Importantly, this combination did not lead to significant maternal or neonatal side effects.
- The findings indicate that dexmedetomidine could be more beneficial than sufentanil as an adjuvant in labor analgesia with the DPE technique.

## Reference

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[1] Song YJ, ANESTHESIA AND ANALGESIA. 2021;132:971-8.

[2] Zhang T, DRUG DESIGN DEVELOPMENT AND THERAPY. 2019;13:1171-5.





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