



SPEAKER DISCLOSURE

I have nothing to disclose.



Comparison of Analgesia Efficacy between Single-Orifice and Multiorifice Wire-Reinforced Catheters for Labor Analgesia with the Dural Puncture Epidural Technique: A Randomized Controlled Trial

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Background

Our previous study [1] demonstrated that single-orifice catheters outperformed multiorifice catheters in terms of faster analgesic onset, lower local anesthetic consumption, and reduced patient controlled epidural analgesia after conventional epidural analgesic initiation. This prospective study was designed to compare analgesic outcomes between these two catheters after dural puncture epidural technique for labor analgesia.

Methods

Between August 30, 2024, and October 27, 2024, healthy, nulliparous women with singleton pregnancies, cervical dilation of 2–5 cm, and requests for neuraxial analgesia were randomized to receive either single-orifice or multiorifice catheters. Epidural analgesia was initiated with 12 mL of 0.1% ropivacaine and 0.3 µg/mL sufentanil), and was maintained with programmed intermittent epidural boluses (10 mL/ 40 minutes) of the same drug at a rate of 360 mL/h. The primary outcome was the time required to achieve a numeric rating scale (NRS) ≤ 3 after initial epidural bolus administration.

Results

Of the 136 randomized parturients, 131 were included in the analysis. Single-orifice catheters achieved adequate analgesia significantly faster than multiorifice catheters (HR: 1.86; 95% CI, 1.16–2.52; $P=0.003$). The median time (interquartile range) to adequate analgesia was 11.0 (7.5–14.5) and 14.0 (10.0–21.0) minutes for the single-orifice and multiorifice catheters, respectively ($P=0.004$, **Figure 1**). Additionally, S₂ sensory blockade was more frequently observed in the single-orifice catheter group at 20 minutes than in the multiorifice catheter group. The single-orifice catheter group had similar maximum sensory level and incidence of motor block compared with the multiorifice catheter group, with no significant differences between the groups in the other measured factors.

Conclusion

Single-orifice catheters provided quicker analgesic onset and more sacral blockade than multiorifice catheters during dural puncture epidural initiation, whereas analgesic outcomes during the maintenance period did not differ between the two groups.

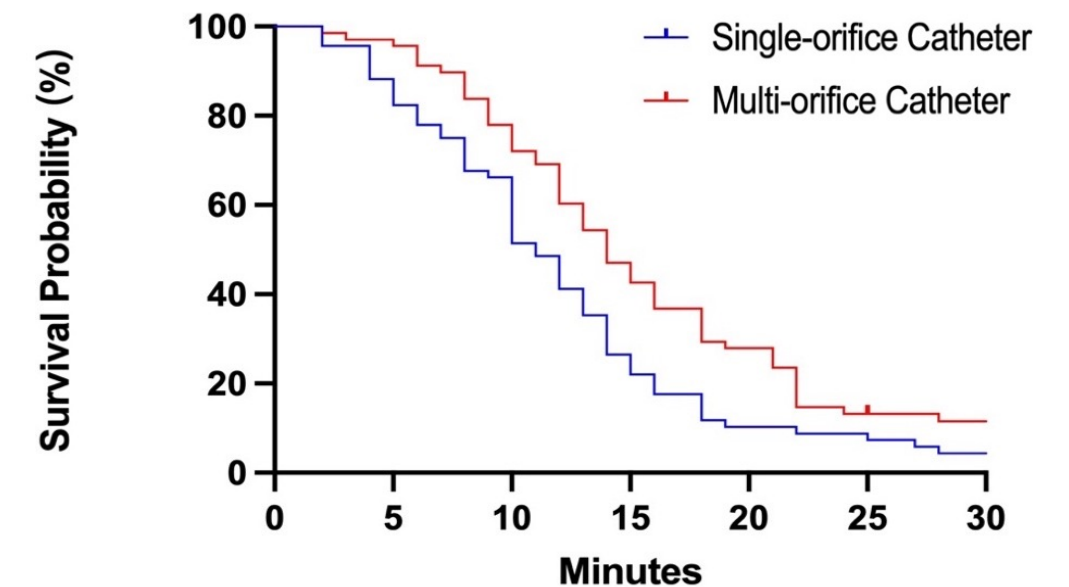


Figure 1: Kaplan-Meier curves for time to achieving NRS ≤ 3 following initial bolus dosing with single-orifice or multi-orifice catheters. Survival probability indicates probability of subjects surviving with NRS ≥ 3 at given time.