

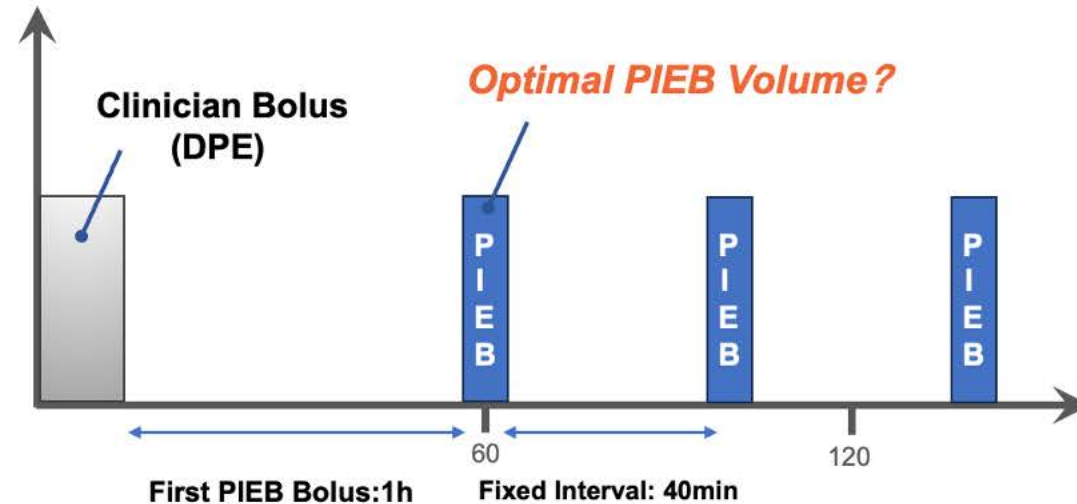


The optimal programmed intermittent epidural bolus volume with dural puncture epidural technique for labor analgesia: A biased-coin up-and-down sequential allocation trial

Yujie Song, MD, PhD, Yingcai Song, MD, Zhendong Xu, MD, PhD, Zhiqiang Liu, MD, PhD

Dural Puncture Epidural (DPE)

- Involve dural puncture
- Rapid onset of labor analgesia
- Better sacral spread
- Less unilateral sensory blockade



Programmed Intermittent Epidural Bolus (PIEB)

- Less breakthrough pain
- Lower anesthetic consumption
- Less motor block
- Greater patient satisfaction

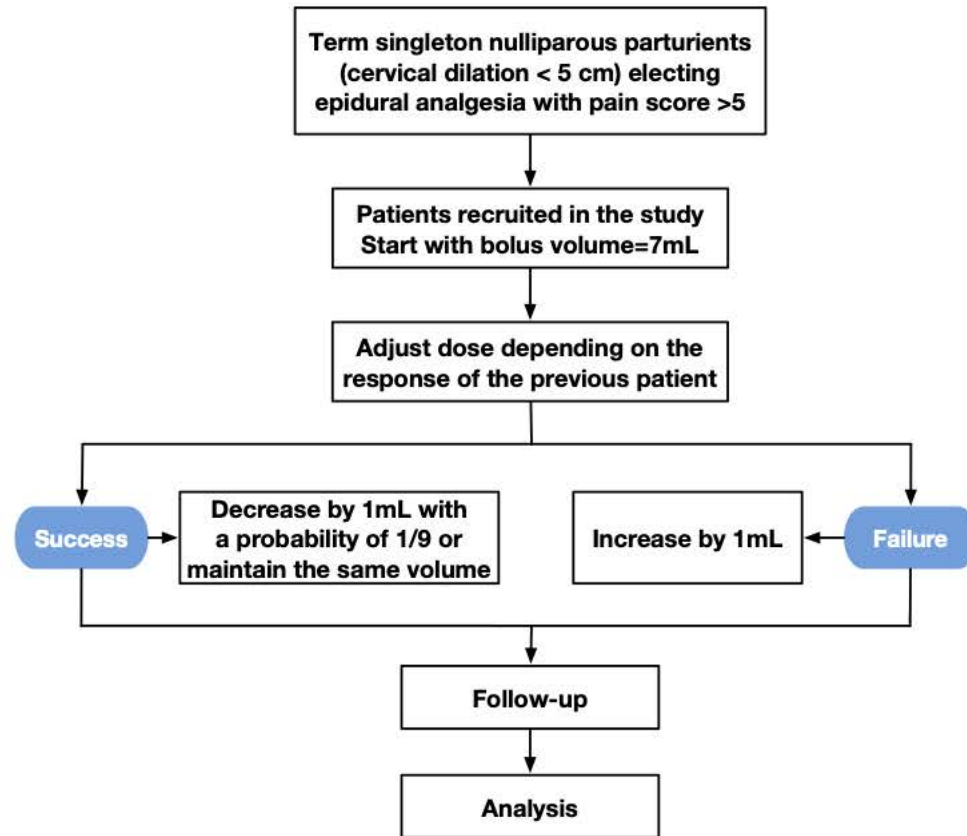
DPE+PIEB: Providing superior analgesia and drug-sparing effects compared to DPE with continuous epidural infusion (CEI) or conventional epidural (EP) with CEI*

Purpose : To determine the optimal PIEB volume for providing effective analgesia in 90% of patients (EV90) during the first stage of labor, when initiated with DPE technique for labor analgesia

* Yujie Song, et al. Effect of Dural Puncture Epidural Technique Combined With Programmed Intermittent Epidural Bolus on Labor Analgesia Onset and Maintenance: A Randomized Controlled Trial. *Anesth Analg*;132(4):971-8

Methods

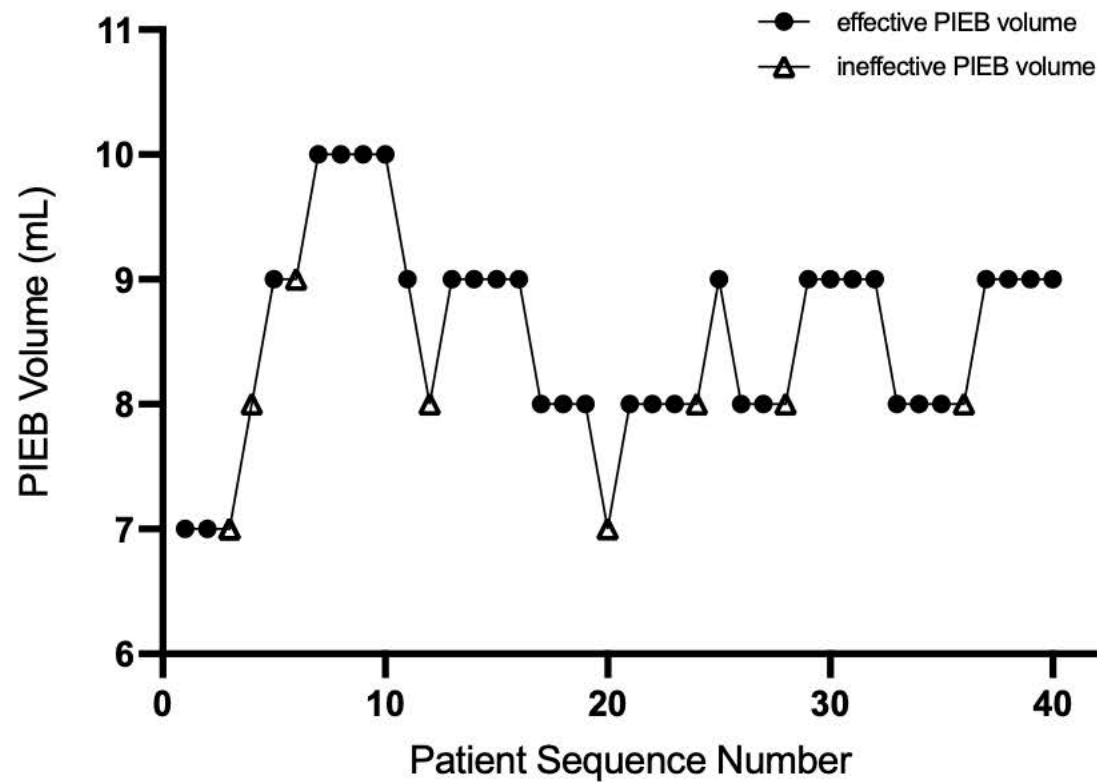
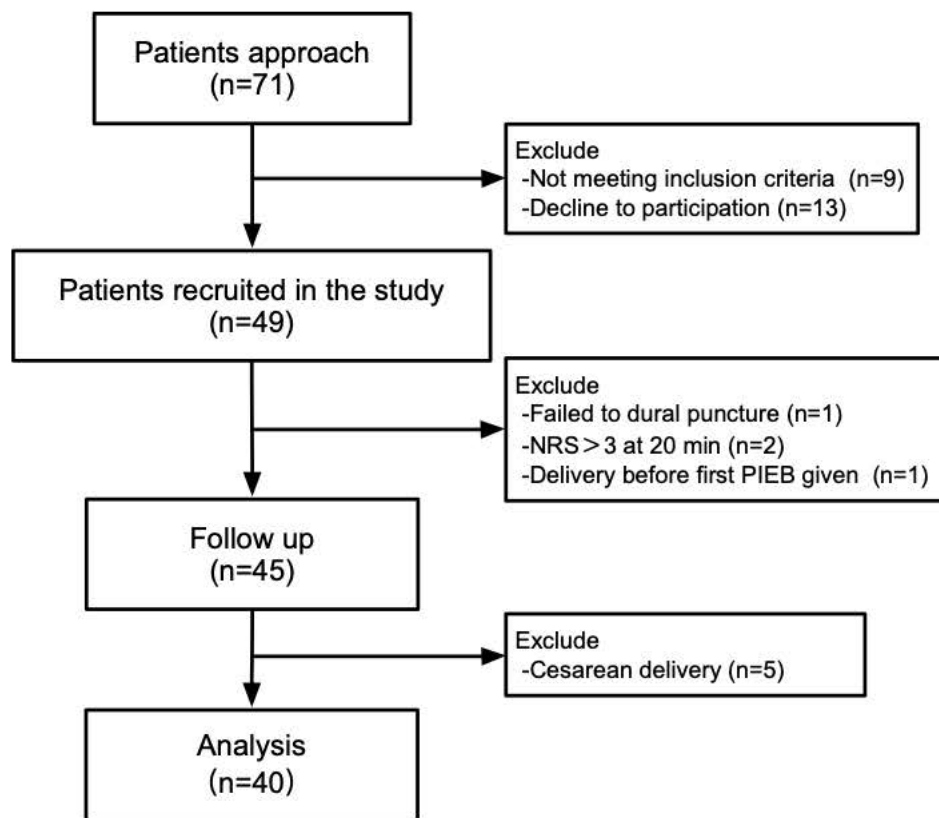
- A biased-coin up-and-down sequential allocation trial; Register at chictr.org.cn (No.ChiCTR2300067281)



Position	DPE Performance
Right recumbent position in L3-4 interspace	25G Whitacre needle
Epidural catheter	Loading dose
19G wire-reinforced, multi-orifice	3mL: 1.5% lidocaine (test dose) 12mL: 0.1% ropivacaine +0.3 µg/mL sufentanil in 2min
PIEB setting	First bolus: 1h after epidural loading Interval: fixed 40min PIEB volume: 7-12mL (biased-coin design)

Primary outcome effective analgesia (no need for rescue analgesia within 6h after initiation or until complete cervical dilation)

Results



EV90: 9.2 mL (Truncated Dixon-Mood); 8.8 mL (Isotonic regression)

Conclusions

- The EV90 for ropivacaine (0.1%) and sufentanil (0.3 µg/mL) approached 9 mL when DPE was combined at a fixed 40-min interval
- One patient in the 40-minute group had a sensory block level above T6
- None of the patients experienced a motor block
- Two patients experienced hypotension without the need for vasopressors

