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### HIGH-VOLUME PCEA VERSUS PIEB FOR LABOUR ANALGESIA: A RANDOMISED, DOUBLE-BLIND, TWO-CENTER, NON-INFERIORITY STUDY IN NULLIPAROUS WOMEN INVESTIGATING QUALITY OF PAIN RELIEF

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**Background and Aims** Maintenance of neuraxial labour analgesia using programmed intermittent epidural boluses (PIEB) is superior compared to continuous epidural infusions with/without patient controlled epidural analgesia (PCEA), causing less breakthrough pain, motor block and local anesthetic (LA) consumption<sup>1</sup>. Compared to low-volume PCEA without background infusion, PIEB produces less breakthrough pain and motor block, despite higher LA consumption.

The goal of this randomised, double-blind, non-inferiority study was to investigate if high-volume PCEA without background infusion compared to PIEB+PCEA, set with equal boluses, results in a similar incidence of breakthrough pain and LA consumption.

**Methods** Following ethics approval and written consent, combined spinal-epidural for labour was performed in 360 nulliparous women. Analgesia was maintained with ropivacaine 0.12% and sufentanil 0.75mcg/mL. Patients randomly received high-volume PCEA without background infusion set at 10 mL bolus with a 30 min lock-out or PIEB as 10 mL bolus every hour plus PCEA boluses of 5 mL with a 30 min lock-out. Breakthrough pain, motor block and LA consumption were recorded.

**Results** Final analysis was performed in 336 women (PCEA n=170; PIEB-PCEA n=166). Breakthrough pain occurred in 11.2% in the PCEA-group and 10.8% in the PIEB-group. Total LA consumption was lower in the PCEA-group than in the PIEB-group (mean 53.1 versus 65.2 mL respectively,  $p < 0.0001$ ). Motor block was not different between groups ( $p = 0.783$ ).

**Conclusions** High-volume PCEA without background infusion and PIEB showed a similar incidence of breakthrough pain and motor block. The PCEA-group had a lower total LA consumption.

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### EVALUATION OF PLASMA BUPIVACAINE LEVELS AT DIFFERENT TIME POINTS AFTER LOW THORACIC ERECTOR SPINAE PLANE BLOCK: AN OBSERVATIONAL PHARMACOKINETIC STUDY

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**Background and Aims** Erector Spinae Plane Block (ESPB) can be applied at all vertebral levels and low thoracic applications are reported in abdominal surgeries. To our knowledge there exists no study of the pharmacokinetics of different local anesthetics in low thoracic ESPB. Here, we aimed to measure and

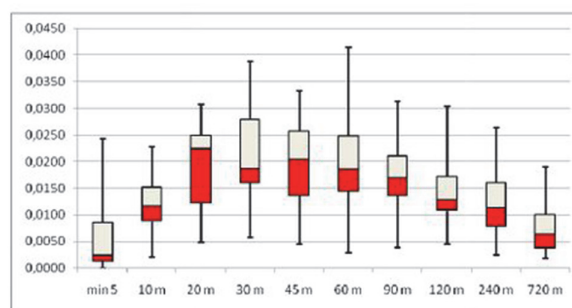
determine the time-concentration relation of the plasma bupivacaine levels at different time points after low thoracic ESPB. **Methods** The observational pharmacokinetic study was performed between March 2021 and March 2022 after IRB approval. ASA class I-II patients aged between 18–65 y undergoing laparoscopic Nissen fundoplication were enrolled into the study. Patients who had paraspinal surgery or a history of previous abdominal surgery were excluded. At the end of the surgery, under general anesthesia, 20 mL of 0.25% bupivacaine was used consecutively to perform bilateral USG-guided ESPB at T9 level, using the out-of-plane technique. Blood samples were taken prior to ESPB and at 5th, 10th, 20th, 30th, 45th, 60th, 90th, 120th, 240th and 720th minutes after ESPB. Plasma bupivacaine concentration was measured using enzyme-linked immunosorbent assay (ELISA).

**Results** 12 male and 5 female patients with mean age of  $39.35 \pm 14.93$  y were included. Peak mean plasma bupivacaine concentration was observed at 30m ( $0.022 \pm 0.010$  µg/ml). The highest concentration was 0.041µg/ml at 60m, in one case. There was no difference in any of the measurements between men and women ( $p > 0.05$ ).

Abstract B6 Table 1

	All (n:17)	Female (n:5)	Male (n:12)	p
Descriptive Data				
Age (Years)	39.35±14.93	42±19.46	38.25±13.49	0.620
BMI (kg/m <sup>2</sup> )	28.55±4.00	27.80±3.00	28.87±4.44	0.631
ASA I/II	11/6	3/2	8/4	0.793
Mean Plasma Concentration of Bupivacaine (mcg/mL)				
5th min	0.003±0.003	0.010±0.008	0.003±0.003	0.0328
10th min	0.012±0.005	0.012±0.005	0.012±0.005	0.881
20th min	0.019±0.007	0.015±0.009	0.019±0.007	0.369
30th min	0.022±0.010	0.020±0.006	0.022±0.010	0.786
45th min	0.020±0.008	0.018±0.007	0.020±0.008	0.765
60th min	0.020±0.008	0.015±0.009	0.020±0.008	0.246
90th min	0.017±0.005	0.015±0.010	0.017±0.005	0.486
120th min	0.015±0.005	0.013±0.009	0.015±0.005	0.614
240th min	0.012±0.005	0.011±0.008	0.012±0.005	0.950
720th min	0.006±0.004	0.009±0.005	0.006±0.004	0.216

Table 1: Descriptive data and mean plasma concentration of bupivacaine. ASA classes are expressed as number of patients whereas other descriptive data are expressed as mean±standard deviation.



Abstract B6 Figure 1 Plasma bupivacaine concentration and time profile demonstrated with Box-plot. X axis: Time points after ESPB block, Y axis: Concentration of plasma Bupivacaine (mcg/mL)

**Conclusions** Twenty mL of 0.25% bupivacaine for ESPB at the lower thoracic level offers safe pharmacokinetics.