44215 - EPIDURAL SPACE DEPTH BY ULTRASOUND--LATERAL VS SITTING

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INTRODUCTION:

The epidural space depth from skin ESD is reported to be more superficial in sitting than in lateral position(1). ESD detected by ultrasonography is proved to be accurate(2). The aim of this study is to detect the difference in the ESD in the sitting and the lateral position in the same patient using ultrasonography.

METHODS:

After REB approval and informed consent, healthy parturients scheduled for elective cesarean section were enrolled. Patients were asked to flex their back maximally in the left lateral position, then using a 5 MHz curved array probe, the anesthesiologist identified the sacrum with the probe longitudinally applied to the patient's spine. After identifying the L5S1 interspace the probe was rotated 90° to a transverse position. Counting upwards, one image of each of L4-5 and L3-4 inter-spaces was captured and labeled. The skin was marked opposite to each level to make consistent comparisons when the same procedure was repeated in the sitting position. Images were then blinded and an anesthesiologist not involved in patient care measured the ESD and the width of the intrathecal space at L4-5 and L3-4. Paired t-tests were used to compare the ESD and dural sac width at each level. Sample size(n=42) was needed to detect a 4 mm difference(SD=9),95% CI.

RESULTS:

To date, we have recruited 10 patients. The mean maternal age was 35.4(5.6) years, BMI 26.2 (3.9) kg/m². There was a significant difference in ESD at L3-4 compared to L4-5 in the lateral (3.6 +/- 4.2 p=0.02) and sitting (2.85mm +/-2.5 p=0.005) positions. Table(1) shows ESD and dural sac width measurements.

DISCUSSION:

Hamza(1) found that the ESD in the sitting position is more superficial than ESD in the lateral position by a mean of 5mm. This was a cohort study done on two different groups of patients. In our study, each patient was her own control. There was a small increase in ESD in the sitting position, which is unlikely to be clinically significant. We also found that L3-4 was significantly more superficial than L4-5 in both positions. This might suggest that neuraxial anesthesia is easier at L3-4. There was no difference in sac width. These findings are preliminary and need to be reassessed on completion of the study.

REFERENCES:

1.J.Clin.Anesth 1995;7(1):1-4

2.Reg.Anesth.Pain Med 2001;26(1):64-67

Table 1				
Level	Distance in mm.(Lateral)	Distance in mm.(Sitting)	Difference (mm)	p-value
L4-5 depth	46.6(4.9)	47.7(4.3)	-1.06	0.198
L4-5 width	9.5(2.6)	9.7(1.8)	-0.2	0.826
L3-4 depth	42.9(2.5)	44.8(2.8)	-1.8	0.011*
L3-4width	10.4(2.16)	11.9(2.27)	-0.61	0.4
<i>Data are presented as mean (SD).L=left lateral, S=sitting, *= statistically significant.</i>				