The Effect of the Dose of Bupivacaine on Prolonged Deceleration during Intrathecal Labor Analgesia

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BACKGROUND

➤The effect of labor analgesia on the uterus hyperactivity which leads to abnormalities of cardiotocogram is known.

➤The aim of this study was to determine retrospectively whether the decreasing dose of bupivacaine intrathecally affected fetal prolonged deceleration without reducing the effect of pain relief.

METHODS

- ◆May to October 2015, the full term parturients
- ◆Used a propensity matched controlled method with the characteristics and the obstetric data
- ◆Analyzed with nonparametric and χ^2 test
- ✓Combined spinal-epidural anesthesia method
- Providers choose the dose of bupivacaine
- CSEA approach L3/4
- Epidural puncture with 18G touhy needle
- Spinal anestheisa with 27G pencil point needle (needle through needle technique)
- Inject the anesthetics
- Inject an epidural catheter

Anesthetics	L group	H group
0.5% bupivacaine (mg)	1.5	2.5
Fentanyl (mcg)	10	10
Normal Saline (ml)	1.5	1.3
Total (ml)	2	2

#1 Prolonged Deceleration:
HR dropped more than 15 bpm from the baseline, prolonged more than 2 min

#2 poor pain control:
no change of numerical rating scale(NRS) within 30 min from administering the intrathecal dose

CONCLUSIONS

- Our results suggested that the intrathecal dose of bupivacaine between 1.5 to 2.5mg for labor analgesia was not associated with the risk of prolonged deceleration and labor outcomes.
- The results could differ if the defferent dose of bupivacaine was compared. (Ex. 1mg vs 5mgs)
- The intrathecal opioids caused the fetal abnormalities of cardiotocogram by the central effects which alter the release of various central peptides.
- The number of the pregnant women enrolled could not be enough to compare.

RESULTS

Backgrounds	L group (n=121)	H group (n=121)	P value
Age (yr)	36 (26-44)	36 (26-45)	0.86
Weight (kg)	60.7 (44-79.5)	59.2 (42.2-98)	0.51
Height (cm)	159 (145-172)	158 (143-175)	0.36
BMI	23.8 (18.7-33.1)	24.1 (17.1-37.4)	0.36
Gestational age (day)	160 (152-169)	160 (148-170)	0.97
Multiparity (n)	43	43	1.00
Cervical dilatation (cm)	5 (1.5-9)	5 (1-9)	0.71
Induction (n)	27	30	0.76
Rupture of membrane (n)	45	51	0.51
Oxytocin use (n)	29	32	0.76
pregnant induced hypertension (n)	2	2	1.00
gastational diabetes mellitus (n)	8	5	0.57
fetal growth restriction (n)	2	2	1.00
Myoma (n)	6	5	1.00

Outcomes	L group	H group	P value
Prolonged Decelaration (n)	19 (13.4%)	10 (7.1%)	0.11
NRS before analgesia	8 (1-10)	8 (1-10)	0.32
NRS after analgesia	1 (0-8)	1 (0-8)	0.83
Type of labor (n)			0.95
spontaneous	72	71	
Instrumental	37	39	
cesarean	12	11	
First phase (min)	469 (34-1535)	445 (43-2121)	0.44
Second phase (min)	77 (6-268)	77 (6-307)	0.49
Umbilical pH	7.31 (7.03-7.43)	7.32 (7.06-7.45)	0.42
Apgar 1min <7 (n)	6	3	0.49
Apgar 5min <7 (n)	0	1	0.50
Umbilical BE (mEq/l)	-1.9 (-12.4-2.1)	-1.8 (-11.4-4.9)	0.58
Poor pain control (n)	12	13	0.83