P-49

IS FETAL BRADYCARDIA FOLLOWING COMBINED SPINAL-EPIDURAL ANALGESIA DUE TO TETANIC UTERINE CONTRACTIONS WITH DECREASED UTEROPLACENTAL PERFUSION? *Marenco, J.E. Birnbach, D.J.; O'Gorman, D.A.; Browne, I.M.; Stein, D.J.; Santos, A.C. Anesthesiology, St. Luke's-Roosevelt Hospital Center, Columbia University, New York, NY* Introduction: Combined Spinal-Epidural (CSE) technique for labor has been reported to be associated with transient changes in fetal heart rate (1). Several anecdotal cases of fetal bradycardia have been reported (2) and it has been suggested that these are due to uterine hyperstimulation related to sudden pain relief and a relative imbalance between the opposing effects of endogenous catecholamines and oxytocin (3). The purpose of this ongoing study is to evaluate the role of uterine tone and uteroplacental blood flow in the pathogenesis of fetal bradycardia following the administration of CSE for labor analgesia. Methods: Following IRB approval and after obtaining informed consent, a prospective evaluation of maternal uterine tone, fetal heart rate and uteroplacental indices were performed in 150 parturients undergoing a CSE for labor analgesia. The first 50 patients received 10 mcg of sufentanil and due to a change in our practice, the subsequent 100 patients received 5 mcg of sufentanil combined with 2.5 mg of bupivacaine. Baseline FHR was measured before and at 5,10,20, and 30 minutes following spinal injection. Maternal heart rate and blood pressure, intrauterine pressure, SpO2, FHR, and Doppler velocimetric readings (S/D ratio and PI index) were assessed at similar time intervals. Results: All women had satisfactory analgesia. The incidence of fetal bradycardia was 4% in women given sufentanil 10 mcg as compared to 2% in the group given 5 mcg of sufentanil in combination with bupivacaine. Hypotension did not occur in any of the women whose babies experienced fetal bradycardia and there were no significant changes from baseline in Doppler indices of uteroplacental perfusion at the time of fetal bradycardia. Only one mother had a fetal bradycardia associated with a tetanic uterine contraction, but even in this women Doppler indices remained unchanged from control values. None of the women exhibiting fetal bradycardia required cesarean delivery; all responded to in-utero resuscitation with intravenous terbutaline (n=2) and sublingual nitroglycerin (n=2). Conclusions: These preliminary findings suggest that uteroplacental hypoperfusion due to uterine hypertonus may not be the only reason for fetal bradycardia following CSE. While one patient did have a tetanic uterine contraction, the other three did not. Therefore, alternative mechanisms, such as a direct fetal opioid effect or sympatholysis, should be studied. Furthermore, a smaller dose of sufentanil and the addition of bupivacaine were associated with a decrease in the incidence of fetal bradycardia. *1. Anesth Analg 1991;88:577-81 2. Reg Anesth 1997;22:400-5 3. Anesthesiology 1994;81:1083*

P-50

MINI-DOSE INTRATHECAL MORPHINE REDUCES ANALGESIC REQUIREMENTS WITHOUT INCREASING SIDE EFFECTS *Vasudevan, A.; Wang, J.; Pratt, S.; Snowman, C.; Hess, P.E.* Anesthesiology, Beth Israel Deaconess Med.Center, Boston, MA Intrathecal morphine is not effective as a sole analgesic for labor, but may increase the effectiveness of concurrently administered local anesthetics.[1] Morphine also decreases the requirements for analgesics after cesarean delivery, but the high dosage required is associated with common side effects. We investigated the effects of mini-dose morphine on the effectiveness of concurrent combined spinal-epidural (CSE) analgesia for labor. This placebo-controlled, double-blinded randomized study was approved by the IRB. Subjects received a combined spinal epidural, using a spinal injection of fentanyl 12.5 mcg and bupivacaine 2mg; in addition, Group 1 received 125 mcg of preservative-free morphine, while Group 2 receive an equal volume of sterile saline in the spinal solution. The primary outcome was the time to request for additional analgesia. Pain scores, sensory and motor block, and maternal vital signs were collected. At first request the epidural infusion was initiated: all subjects received a 15 cc bolus and 15 cc/hr infusion of a bupivacaine 0.04%/ fentanyl 1.67 mcg/cc solution throughout labor. Subsequent requests for treatment of breakthrough pain were recorded. Postpartum pain scores were taken at 1 hour and 24 hours. Side effects of nausea, itching and sedation were documented. Chi-squared and Mann-Whitney tests used for analysis, $p<0.05$ considered significant. 44 parturients in this ongoing study have been enrolled. 1 patient eliminated due to protocol violations, 9 dropped due to surgical delivery. Group 1 has 18 subjects, and Group 2 has 16. The onset of analgesia was similar, with pain score<3/10 at 5 minutes in both groups. The duration of spinal analgesia was not significantly longer in Group 1 ($p=0.14$). The rate of breakthrough pain (per hour of labor) was less among Group 1 (0.12 ± 0.18 v. 0.31 ± 0.21 for Group 2,$p=0.04$). There was no difference in sensory or motor block, or incidence side effects. We found no significant difference in pain scores after delivery, but the amount of postpartum medication required was significantly more in Group 2 ($5.0^{+}3.1$ v. $2.4^{-}2.8$ meds per pt,$p=0.02$) There was no differences in maternal demographics, labor duration or characteristics, or APGAR scores. Intrathecal morphine 125 mcg insignificantly prolongs of spinal analgesia during CSE, but significantly decreases the subsequent requirement for supplemental pain mediation during labor and on the first postpartum day without increasing side effects. This may be desired in parturients with severe labor pain. *1 Anesth.Analg. 2001; 92:665-8*

Group	VPS before spinal	Duration of block (min)	Duration of labor (min)	Boluses during labor	Pruritis %	N/V %
1 (Morphine)	7.1±1.6	94±50	380±174	0.7±0.9	70.8	16.7
2 (Placebo)	7.9±1.8	76±26	328±137	1.5±1.3	70.0	0