TITLE: NEONATAL NEUROBEHAVIORAL EFFECTS OF CONTINUOUS EPIDURAL INFUSION OF FENTANYL/BUPIVACAINE/EPINEPHRINE IN LABOR

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Introduction. Addition of narcotic to local anesthetic provides excellent epidural analgesia for labor while allowing reduction in local anesthetic dose.[1,2] Recent evidence suggests that continuous epidural infusion of such mixed agent solutions uses less total drug with fewer maternal side effects, and interferes less with progress in labor and mode of delivery as compared to bolus techniques.[3] However, potential narcotic effects on the newborn remain controversial. We are evaluating, in a controlled study, the neonatal effects of continuous infusion, mixed agent (fentanyl, bupivacaine, epinephrine) epidural analgesia maintained throughout labor and vaginal delivery.

Methods. Twenty-nine healthy laboring women aged 18-35 years with uncomplicated term pregnancy, no history of substance abuse, and a singleton fetus in vertex position have consented to this IRB approved study to date. Patients self-selected analgesic management of labor: without medication, with systemic meperidine, or by mixed agent epidural infusion. Epidural analgesia was initiated with a bolus of 10 ml saline containing 12.5 mg bupivacaine, 50 mcg fentanyl, and 16.5 mcg epinephrine. Twenty minutes after the bolus, a saline infusion containing 0.44 mg of bupivacaine, 1.25 mcg fentanyl, and 1.25 mcg of epinephrine per ml was started at 12-16 ml/hr, depending upon the analgesic level achieved with the bolus. Neonates were evaluated at fifteen minutes and two hours after vaginal delivery by the principal investigator, who had no involvement in the anesthetic management of these patients, using the Neurologic and Adaptive Capacity Score (NACS) described by Amiel-Tison et al.[4] If the two hour score was less than 35 out of a possible 40 points the neonate was again evaluated at 24 hours. At delivery, 10 ml of cord blood were drawn for bupivacaine, fentanyl and meperidine analysis.

Results. Eighteen epidural and eleven control patients have been studied. Groups did not differ with respect to age, weight, parity, length of second stage labor, oxytocin augmentation, instrumented delivery and incidence of meconium stained fluid. In the control group, one mother received meperidine and another received a pudendal block at delivery with 10 ml of 0.25% bupivacaine. The remaining nine labored without medication. Newborns in the two groups did not differ by weight, gestational age, or one and five minute Apgar scores. Fifteen minute and 2 hour NACS scores were not statistically different between groups. One neonate, from the mother who received meperidine, required a twenty-four hour NACS exam which was then normal. Duration of epidural infusion showed no correlation with either NACS scores or length of second stage labor. Drug analyses of cord blood are being completed.

Conclusions. Current results from this study suggest that addition of fentanyl to epidural anesthetic solutions administered by continuous infusion for labor analgesia, in the dosage described, does not affect the neonate. This technique also does not appear to significantly affect length of second stage labor or mode of delivery as compared to unmedicated labor.

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TITLE: IS PREGNANCY INDUCED HYPERTENSION A RISK FACTOR FOR DIFFICULT INTUBATION?

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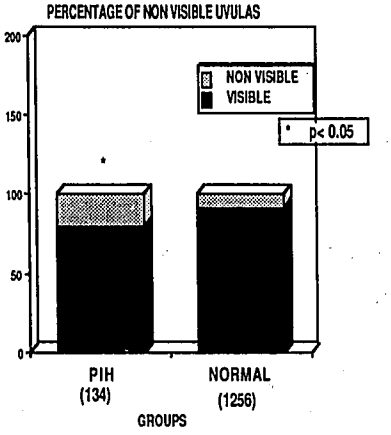
INTRODUCTION: Failed intubation is still the leading cause of anesthetic-related maternal mortality in obstetrics and has been reported with pregnancy induced hypertention (PIH) (1,2).Visibility of the uvula is a reliable predictor for easy endotracheal intubation (3).The incidence of this risk factor in pregnant women is not known. Thus, the goal of this study was to compare the visibility of the uvula in pregnant women with or without PIH.

METHODS: After institutional approval we considered 1390 pregnant women in 1989, in a large longitudinal prospective epidemiologic study. Data were collected in late pregnancy (36 weeks) during the preanesthetic visit using a questionnaire including age, weight, height, parity, other diseases, cardiac and pulmonary condition, risks for thrombosis, bleeding, allergy and assessment of a possible difficult intubation.Statistical analysis was performed with chi-square test. PIH was diagnosed when arterial pressure was found to be over 140/90 mm Hg at various times during pregnancy. Patients who's uvula was not seen or only partially seen in the sitting position were considered to be at high risk for difficult intubation .Patients who's body mass index (BMI), calculated with weight before pregnancy, was over 23, were defined as obese.

RESULTS: The population was homogeneous for age and parity.We found a correlation between PIH and obesity ($p<0,05$), and between non visibility of uvula and obesity ($p<0,05$).The incidence of invisible uvula in PIH parturients is shown in the figure. However there is no statistically significant relation between non visibility of uvula and obesity in the PIH population.

DISCUSSION:There was significantly more parturients with non visible uvula in the PIH population when compared to non hypertensive parturients. Literature suggests that non visible uvula is related to obesity which is significantly associated to PIH, but our findings did not confirm it. Considering that PIH parturients are at higher risk for emergency operative delivery, the addition of a higher risk for difficult intubation makes "prophylactic" epidural analgesia highly recommended.



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