P-61

A PROSPECTIVE RANDOMIZED DOUBLE-BLIND COMPARISON OF OBSTETRIC OUTCOME AFTER LABOR EPIDURAL ANALGESIA USING LOW CONCENTRATION ROPIVACAINE OR BUPIVACAINE INFUSIONS WITH FENTANYL

LEE, B.B. NGAN KEE, W.D. Dept of Anaesthesia & Intensive Care, The Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, Hong Kong

Although controversial, there is evidence that the use of epidural analgesia (EA) may potentially have detrimental effects on the progress of labor and interventional delivery rate, likely related to associated motor block. However, most data are retrospective in nature. We prospectively randomized 350 ASA 1 and 2 laboring parturients who requested EA to receive either ropivacaine 0.25% (Ropivacaine group) or bupivacaine 0.25% (Bupivacaine group) followed by a continuous infusion of the respective 0.1% solution with fentanyl 0.0002% (2 mcg/ml). Infusions were started at 8 ml/h and adjusted up to a maximum rate of 12 ml/h with intermittent top-ups with the respective 0.25% LA solution as required. Infusions were maintained throughout labor, continuing through the second stage. The attending obstetrician and midwives, who were also blinded to the patients' groups, managed the second stage of labor according to the existing institutional labor ward protocol. 346 patients completed the study. There was no difference in demographic data, and parity was evenly distributed between the two groups. Characteristics of the EA, sensory and motor block, incidence of hypotension or vasopressor requirement, supplementary epidural topup requirement, birth weight and Apgar scores, and patient satisfaction were similar. Modes of delivery were similar (odds ratio(95% C.I.) for Ropivacaine compared to Bupivacaine group): C/S 1.025 (0.661 to 1.590); instrumental delivery 1.165 (0.717 to 1.894), & vaginal delivery 0.867 (0.565 to 1.330). However, among those who delivered vaginally, the duration of the first stage was significantly shorter in the Ropivacaine group ($P < 0.01$). Multiple logistic regression identified parity (O.R. 4.853, 95% C.I. 1.861 to 12.657), and neonatal birth weight (O.R. 2.630, 95% C.I. 1.462 to 4.729), to be associated with an increased risk of C/S. Our results showed no difference in the mode of delivery between using a continuous EA infusion of ropivacaine 0.1% with fentanyl 0.0002%, or bupivacaine 0.1% with fentanyl 0.0002%. However, among those who delivered vaginally, the duration of the first stage of labor was significantly shorter (by a median of two hours) in the Ropivacaine group. This was not associated with any difference in motor block between groups.

Writer WD, Stienstra R, Eddleston JM, Gatt SP, Griffin R, Gutsche BB, Joyce TH, Hedlund C, Heeroma K, Selander D. Neonatal outcome and mode of delivery after epidural analgesia for labour with ropivacaine and bupivacaine: a prospective meta-analysis. Br J Anaesth 1998 Nov;81(5):713-7

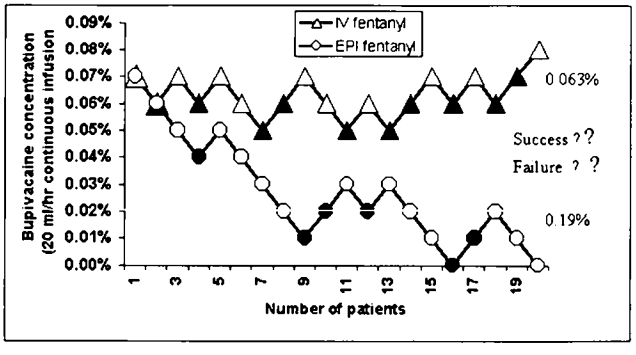
P-62

EPIDURAL FENTANYL INFUSIONS IN THE PRESENCE OF LOCAL ANESTHETICS EXERT SEGMENTAL ANALGESIA: AN MLAC INFUSION STUDY IN NULLIPAROUS LABOR

Ginosar, Y.[2] Columb, M.[3] Cohen, S.E.[1] Mirikatani, E.[1] Tingle, M.S.[1] Ratner, E.F.[1] Riley, E.T.[1] 1. Department of Anesthesiology, Stanford University Medical Center, Stanford, CA; 2. Department of Anesthesiology, Hadassah University Hospital, Jerusalem, Israel; 3. Department of Anaesthesia and Intensive Care Medicine, South Manchester University Hospital, Withington, United Kingdom

In an experimental pain study in healthy volunteers, we report that, in the absence of local anesthetics, bolus administration of epidural fentanyl elicited segmental analgesia while continuous infusion of epidural fentanyl elicited systemic analgesia. However, in clinical practice, fentanyl infusions are typically administered together with local anesthetics. The hypothesis of this study is that in the presence of bupivacaine, fentanyl infusions exert a predominantly segmental effect. **Method:** 48 nulliparous women in early active labor participated in this prospective, randomized, double-blinded study. Women received lumbar epidurals on request, 20-25 ml bupivacaine 0.125% plain till pain free, then enrolled and randomized to either IV or EPI fentanyl infusions (30 microgram/hr). Unlike previous studies, which assessed MLAC for bolus administration at the initiation of analgesia, this study assessed $MLAC_{infusion}$ for the maintenance of analgesia throughout the 1st stage of labor. All women received an epidural infusion of bupivacaine at a rate of 20ml/hr, the concentration of which was determined by the response of the previous woman in the same group to the analgesic regimen used. Women were informed that they were able to receive supplemental epidural analgesia on demand. Vaginal examination was performed immediately after additional bolus administration. The treatment was labeled a success if no supplemental analgesia requested until 8cm cervical dilatation or greater. The treatment was a failure if top-up was required before 8cm cervical dilatation. $MLAC_{infusion}$ (and 95% confidence interval) was determined using the up-down sequential analysis described by Dixon and Massey[1]. **Results:** The figure depicts the $MLAC_{infusion}$ (or EC50) for the IV and EPI fentanyl infusions. The $MLAC_{infusion}$ of bupivacaine was 0.063 (*95%CI* 0.058, 0.068) and 0.019 (*95%CI* 0.000, 0.038) in the IV and EPI groups respectively. $MLAC_{infusion}$ of bupivacaine in the epidural fentanyl bolus group was by the Dixon Massey method We demonstrated that a continuous infusion of fentanyl was over 3 times more efficacious when administered by the epidural route than when administered intravenously. **Conclusions:** This marked increase in efficacy for the epidural route is highly suggestive for a predominantly spinal mechanism of action under the conditions of this study.

1. Columb MO, Lyons G: Determination of the minimum local analgesic concentrations of epidural bupivacaine and lidocaine in labor. Anesth Analg 1995; 81: 833-7.



Downloaded from http://asa2.silverchair.com/anesthesiology/article-pdf/96/4/NA/334911/0000542-200204001-00084.pdf by guest on 18 April 2024