GM-5

EARLY LABOR IS MORE PAINFUL IN PARTURIENTS WHO EVENTUALLY DELIVER BY CESAREAN SECTION FOR DYSTOCIA *Panni, M.K. Spiegel, J.; Segal, S. Anesthesiology, Perioperative and Pain Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, MA* Dystocia is characterized by abnormal progress of labor and is the most common contemporary indication for cesarean delivery in the United States. There has been considerable controversy as to whether epidural analgesia causes dysfunctional labor leading to cesarean delivery for dystocia. The minimum local analgesic concentration (MLAC) is a clinical model used to determine the relative potencies of local anesthetics in the first stage of labor (1). In this paper we report a prospective study determining the MLAC of bupivacaine in early labor of nulliparous parturients who eventually deliver either vaginally or via cesarean section. An up-down sequential allocation technique was used to investigate the MLAC of bupivacaine in these parturients (2). In addition patients were assigned to groups who were or were not on intravenous oxytocin at the time of epidural catheter placement. In each arm of the study an additional criterion for rejecting a given patient was failure to deliver by that arm's randomly assigned mode. Parturients who later delivered vaginally had a 25% and 31% lower MLAC value (0.085% and 0.078% wt./vol. bupivacaine, receiving or not receiving intravenous oxytocin respectively) than those who later delivered by cesarean section (0.106% and 0.102% wt./vol. bupivacaine, receiving or not receiving intravenous oxytocin respectively). In addition it was seen that those parturients receiving intravenous oxytocin at the time of epidural catheter placement had slightly lower MLAC values (4% and 9% lower, delivering by vaginal or cesarean section respectively) than those not receiving oxytocin. Logistic regression showed both delivery mode ($p=0.0264$) and concentration ($p=0.0003$) to be highly significant independent predictors of response to bupivacaine. Our data do not establish cause or effect, but strongly suggest that a woman's need for labor analgesia is associated with intense pain related to labor dystocia. This relationship should be considered when studying the method of labor analgesia and its potential effects on the course of labor. Our observation that more intense pain is associated with difficult labor may also alert obstetricians that such pain is not caused by reduced pain threshold, but may also be a marker of intrinsically difficult and ultimately obstructed labor. *1. Columb MO, Lyons G. Determination of the minimum local analgesic concentrations of epidural bupivacaine and lidocaine in labor. Anesth Analg 1995; 81:833-837. 2. Dixon WJ, Massey FJ. Introduction to Statistical Analysis, 4th ed. New York, McGraw-Hill, 1983; 428-439.*

GM-6

THE IMPORTANCE OF METHODOLOGICAL VARIABLES IN THE STUDY OF HYPOTENSION AFTER SPINAL ANESTHESIA FOR CESAREAN SECTION: PENTASTARCH VS. NORMAL SALINE *Bach, P.S. Kamani, A.A.; Douglas, J.M.; Gunka, V.; Esler, M. Anesthesia, B.C. Women, Vancouver, BC, Canada* Numerous studies have addressed the impact of fluid preloading on the incidence of hypotension after spinal for Cesarean section[1]. The results have been highly variable and a number of methodological shortcomings have been identified[1] such as: Definition of hypotension used,[1,2]; place where baseline BP was established (stress response in OR), crystalloid to colloid ratio[3], failure to delineate preload-spinal interval[3], prophylactic vasopressor use, reliance on single hypotensive BP readings, lack of standardized spinal dose and injection rate, and lack of adequate sample size[1]. This study was designed to tightly control these variables and determine if the incidence of hypotension after spinal for C/S is as high as the literature suggests. After institutional ethics approval 160 healthy women were randomized in a controlled double blind fashion to receive pentastarch 10ml/kg or normal saline 30ml/kg prior to spinal for Cesarean section. Power analysis was based on a literature review[1]. An average of 3 BPs were taken in the holding area to establish the baseline. Hypotension was defined as systolic BP<90mmHg or <70% of baseline or symptoms. Vasopressors were only given after two successive hypotensive readings or symptoms. Preload-to-spinal interval was <30 minutes. Spinal dose and injection rate were standardized. Interim analysis of 80 women enrolled to date indicates the incidence of hypotension is not statistically different between the groups (A=32.5% B=20.0% $p=0.155$). The groups are demographically similar. This is the first study that tightly controls all of the methodological variables discussed above. The incidence of hypotension in the two groups was similar and is less than in other studies that compare crystalloids to colloids[1]. Close attention to these methodological variables may have reduced the observed incidence of hypotension in this study. *1. Morgan PJ, et al. Anesth Analg 2001; 92: 997-1005. 2. Norris MC, Reg Anesth 1987; 12: 191-94. 3. Ueyama H, et al. Anesthesiology 1999; 91:1571-76.*