Anesthesiology
V 45, No 5 Nov 1976

Reports of Scientific Meetings

Ellis N. Cohen, M.D., Editor

The Society of Obstetric Anesthesia and Perinatology

The eighth annual meeting of the Society for Obstetric Anesthesia and Perinatology was held April 9–11, 1976 in Orlando, Florida. Major areas of discussion included regionalization of obstetric care and a review of obstetric anesthesia, obstetrics and perinatology. Thirty-seven "works in progress" reports were presented, and the following are selected as representative of the general directions of perinatal investigation.

Gibbs and Noel (University of Florida) examined *in-vitro* responses of the human uterine artery to increasing doses of lidocaine. Tubular rings of smooth muscle were fashioned from arterial segments taken from six cesarean hysterectomy specimens. Isometric contractions in these rings in response to several concentrations of lidocaine were measured. All segments contracted when exposed to 1,000 and 2,000 μg/ml lidocaine; however, the responses varied at the lower concentration. Although maternal systemic blood concentrations of lidocaine after epidural anesthesia are lower than the levels used in this experiment, it is possible for the uterine artery to be exposed to high concentrations during paracervical block. These studies thus suggest that uterine blood flow may decrease and the fetus may be compromised if the uterine arteries are exposed to such concentrations of lidocaine as a result of paracervical block.

Radosevich, Kennedy, Turner, and Erenberg (University of Iowa) investigated the effects of maternal and fetal blood *p*H changes on the placental transfer of lidocaine. The experimental preparation consisted of pregnant ewes with prior hysterotomy for the placement of appropriate catheters. The conditions studied included: maternal respiratory alkalosis, fetal metabolic acidosis, and the combination of maternal respiratory alkalosis and fetal metabolic acidosis. Preliminary results indicated that the combination of maternal respiratory alkalosis and fetal metabolic acidosis resulted in an increase in fetal uptake of lidocaine. Lower fetal lidocaine levels were seen with fetal metabolic acidosis and lowest levels with maternal respiratory alkalosis.

In contrast, Biehl, Shnider, Levinson, Lord and Johnson (University of California, San Francisco) found no significant difference in the ratios of umbilical artery–maternal artery blood lidocaine concentrations (0.34–0.40) during elective cesarean section with epidural anesthesia. Umbilical artery blood *p*H's ranged from 7.05 to 7.34. Thus, in the clinical setting, fetal acidosis does not appear to increase fetal blood levels of lidocaine.

Bart and Wheeler (Naval Regional Medical Center, Portsmouth, Virginia) compared epidural saline solution with epidural blood patch in the treatment of post-lumbar-puncture headache. In 40 cases of post-lumbar-puncture headache, 19 patients received 30 ml of epidural saline solution, with 8 patients obtaining relief for more than 24 hours. Twenty-one patients received an epidural blood patch, with 17 obtaining relief for more than 24 hours. The authors concluded that 30 ml of saline solution infused into the epidural space was adequate treatment for headache following dural puncture with a 25-gauge spinal needle. However, with the dural hole produced by a 17-gauge epidural needle, use of an epidural blood patch was superior. There was no complication in either series.

Miclat and Marx (Albert Einstein College of Medicine) measured gastric juice *p*H in 91 neonates, 71 of whom were born vaginally and 20 by cesarean section. Gastric juice *p*H was significantly higher following cesarean section, and was highest in premature babies regardless of the mode of delivery. Amniotic fluid *p*H's ranged from 7.0 to 7.5. No correlation was found among cord blood *p*H, base deficit, Apgar score, and *p*H of gastric juice. The authors concluded that labor and delivery predispose to the extrauterine development of acidic gastric juice, and the development of acidity is retarded in the absence of labor and vaginal delivery. Premature

infants seemed unable to react to this stimulus. Miclat and Marx recommended that gastric aspiration be performed in all neonates with poor muscular tone and reflex activity. Since gastric juice *p*H may be below 3.0, there is an increased risk of chemical pneumonitis in these patients should aspiration of stomach contents occur.

Hodgkinson and Bhatt (Albert Einstein College of Medicine) performed a double-blind comparison of neonatal neurobehavior following cesarean section with ketamine, thiopental, or spinal anesthesia. They found the highest scores for neonatal neurobehavior in infants born to mothers receiving spinal anesthesia and the lowest scores followed thiopental anesthesia. Intermediate scores were obtained with ketamine. Infants were scored on the first and second days after birth, with an overall assessment of tone, placing, rooting, alertness and decremental scores to pin prick.

Clark, Thompson, and Baeclay (University of Arkansas) examined methods to prevent maternal hypotension associated with spinal anesthesia for cesarean section. They compared elective versus emergency cesarean section patients in three categories: no treatment, hydration with 1,000 ml 5 per cent dextrose in lactated Ringer's solution prior to spinal anesthesia, and hydration with 1,000 ml 5 per cent dextrose in lactated Ringer's solution plus uterine displacement using the Sluder device following the spinal anesthesia. Untreated, the incidence of hypotension was 92 per cent. However, when the patient was in labor, the incidence of hypotension was only 50 per cent. The presence of uterine contractions tends to decrease hypotension because of the squeezing of approximately 300 ml of blood into the circulation with each contraction. Fluid loading, plus left uterine displacement, greatly decreased the incidence of hypotension (52.8 per cent in the elective group and 14.7 per cent in the emergency group). The authors concluded that infusion of 1,000 ml of dextrose in lactated Ringer's solution, plus uterine displacement, would markedly reduce the incidence of maternal hypotension and should be used for all cesarean sections.

Angiulo and Gibbs (University of Arizona and University of Florida) reviewed difficulties encountered during rapid endotracheal intubation. They examined the records of 556 surgical and obstetric patients subjected to rapid anesthetic induction. In 27 records (4.9 per cent), there was a notation explaining a delay or difficulty with intubation, for a variety of reasons including anatomic variation, inappropriate-sized endotracheal tubes, and inadequate response to muscle relaxants. There was no significant difference between nonobstetric and obstetric patients. These authors found that many problems might have been avoided with careful examination of the patient and provision of adequate equipment prior to induction.

Roaf, Fruberger and Alper (Harvard Medical School) presented data on the incidence of postoperative respiratory complications in 300 elective cesarean sections evaluated preoperatively by history and by measurement of forced vital capacity (FVC) and forced one-second expiratory volume (FEV_1). The diagnosis of a respiratory complication included one or more of the following criteria: 1) positive chest x-ray; 2) rales or rhonchi on physical examination and a temperature above 100 F; 3) temperature above 100 F and a positive sputum culture in the absence of other explanations for fever; 4) temperature above 100 F and presence of mucopurulent sputum, necessitating respiratory therapy.

The overall incidence of respiratory complications was 10 per cent. Of those patients who had abnormal respiratory histories (n = 41), 12 per cent had complications. Of those who had abnormal pulmonary function (n = 46), 9 per cent had complications. Eight-five smokers had a respiratory complication rate of 11 per cent. The authors conclude that a positive history of respiratory complications, history of smoking, or the use of pulmonary function studies was of no value in predicting postoperative respiratory complications.

ROBERT HOOK, N.D.
Associate Professor of Anesthesiology and Obstetrics and Gynecology
Yale University
New Haven, Connecticut
GERARD W. OSTHEIMER, M.D.
Instructor in Anesthesia
Harvard Medical School
Boston, Massachusetts