

# Literature Briefs

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## Obstetric Anesthesia

**LIDOCAINE RESPONSE** Uterine arteries from pregnant and nonpregnant patients were studied to define their responses to lidocaine. Although local anesthetics usually are considered vasodilators, these data indicate the human uterine artery constricts when exposed to lidocaine *in vitro*. Furthermore, those arteries from pregnant patients showed significantly greater responses than did those from nonpregnant patients. (Gibbs CP, Noel SC: Human uterine artery responses to lidocaine, *Am J Obstet Gynecol* 126:313-315, 1976.)

**MATERNAL CARDIOVASCULAR DYNAMICS** Blood volume was measured in 75 normal pregnant women at term and serially at 10 and 60 minutes and on days 1 and 3 after delivery in women whose infants were delivered vaginally and on days 1, 3 and 5 in women who underwent cesarean section. The mean blood volume at term was 5.95 l or 83.3 ml/kg body weight, an increase of 44 or 16 per cent, respectively, over nonpregnant values. The increment appeared to be related to lean body mass and the weight of the neonate alone and to the combined weights of the neonate and placenta, but the wide range of values precluded statistical significance. The blood volume losses 60 minutes after delivery were 610 ml (10.2 per cent) for patients whose infants were delivered vaginally and 1,030 ml (17.4 per cent) for those who had cesarean section. The blood volume showed a steady decline until day 3 after delivery in the vaginal-delivery group, whereas it remained fairly stable from 60 minutes to day 5 after delivery in the cesarean section group. Remarkably, the volumes had declined by the same amount, 16.2 per cent, in both groups on the third postpartum day. On the other hand, the hematocrit showed an increase of 5.2 per cent in the former group and a decline of 5.8 per cent in the latter. A remarkable tolerance for blood loss at delivery was demonstrated. A more realistic definition of postpartum hemorrhage is strongly recommended. (Ueland K, Maternal cardiovascular dynamics, VII. Intra-partum blood volume changes, *Am J Obstet Gynecol* 126:671-677, 1976.)

**EPIDURAL ANALGESIA** The effects of continuous lumbar epidural analgesia for labor and delivery were studied in 20 women with gestational hypertension. Maternal hemodynamics, renal function, acid-base, and blood-gas findings were examined, together with newborn Apgar scores and umbilical-vessel blood-gas and acid-base values. Changes in maternal renal function and hemodynamics were minimal. Maternal and newborn

acid-base and blood-gas findings were comparable to those of normotensive control subjects also receiving epidural analgesia. Apgar scores in both groups of subjects were good. Continuous epidural analgesia is recommended for use in the management of labor and delivery in women who have gestational hypertension. (James FM III, Davies P, Maternal and fetal effects of lumbar epidural analgesia for labor and delivery in patients with gestational hypertension, *Am J Obstet Gynecol* 126:195-201, 1976.)

**LOCAL ANESTHETIC RESPONSE** The *in-vitro* effects of local anesthetics and norepinephrine upon strips of early-gestation and term-pregnancy uterine arteries were studied in eight cases. In another case, the effect upon uterine veins was studied with a standard organ bath used to record isometric contractions. Histologic preparations were made to verify the type of vessel studied. An artery obtained from an eight-week gestation did not respond to either lidocaine or mepivacaine. All other arterial specimens (radial and heliocoidal strips) responded with slow-rising, strong contractions to diluted concentrations of both of these substances. Likewise, they responded with rapid contractions when exposed to norepinephrine. Alpha blockers were unable to prevent the contractions triggered by the local anesthetics. The vein specimens did not respond to local anesthetics but contracted when stimulated by norepinephrine. Based on these observations, and after brief review of some hypotheses advanced to explain post-paracervical-anesthesia fetal bradycardia, it is postulated that this bradycardia is probably due to uterine-artery spasm, which causes decreased intervillous-space blood flow and fetal hypoxia. (Cibils LA, Response of human uterine arteries to local anesthetics, *Am J Obstet Gynecol* 126:202-210, 1976.)

**MONITORING AND CESAREAN SECTION** The influence of balanced anesthesia on fetal heart rate and uterine contraction patterns was evaluated in pregnant women undergoing emergency cesarean section. The results showed that during operative delivery with balanced anesthesia there was a significant decrease in the beat-to-beat variability of the fetal heart rate, probably due to the anesthetic agent. There was a decrease in uterine contractility, expressed by the significant decreases in the peak pressure as well as in the duration of the uterine contractions. Periodic changes in the fetal heart rate as decelerations and accelerations disappeared or improved mostly due to the decrease of uterine contractility. (Tritsch T, and others, Electronic monitoring of the fetal heart rate and uterine contractions during cesarean section under balanced anesthesia, *Obstet Gynecol* 48:292-296, 1976.)