Title: Maternal Hemodynamic Responses to Epinephrine-Containing Local Anesthetics in Pre-Eclampsia

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Introduction: Epinephrine-containing local anesthetics are avoided in the pre-eclamptic patient during epidural anesthesia for fear of excessive hypertension. However, the actual occurence of hypertension in this situation has not been reported. The present study was undertaken to evaluate the maternal hemodynamic responses to epinephrine during epidural anesthesia for labor.

Method: Following approval of the protocol by the Institutional Review Board and after obtaining informed consents, thirty pre-eclamptic patients in labor were studied. Lumbar epidural catheters were inserted and patients were prehydrated using 500 ml of 5% dextrose in lactated Ringer's solution. Group I patients (n=16) received 8 ml of 1.5% lidocaine with 1:200,000 epinephrine and group II patients (n=14) received 8 ml of plain 1.5% lidocaine in a double-blind randomized fashion. Parameters recorded included maternal blood pressures and heart rates, fetal heart rates, duration of analgesia and neonatal outcome. Data were analyzed for statistical significance using Student's t-test or chi-square when appropriate. A P value of less than 0.05 was considered statistically significant.

Results: are presented in figure. None of the patients in group I developed hypertension following injection of lidocaine with epinephrine. There were significant decreases in mean arterial blood pressure following epidural injection of the local anesthetics in both groups. Duration of analgesia was significantly longer ($P<0.01$) in group I patients (102.5±6.5) compared to group II patients (55.5±5.4)($\bar{X}$±SEM, min). All neonates had normal heart rate tracings and Apgar scores of 9 or more at 5 minutes.

Discussion: Results from our study suggest that pre-eclamptic patients are not likely to experience hypertension when small amounts of epinephrine are injected epidurally. However, IV administered epinephrine can cause a dose related reduction in uterine blood flow without adversely affecting the normal fetus (1). Thus, careful technique is mandatory and only small incremental doses of epinephrine should be administered. Results from our study are also in agreement with a recent report in which four pre-eclamptic patients received epidural anesthesia with epinephrine-containing solutions without any adverse effects on the parturient or the fetus (2).

References

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