Parturient with Hypertrophic Obstructive Cardiomyopathy: Anesthetic Management of a Continuous Spinal Anesthetic Using the LiDCO Monitor

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Introduction: Many options exist in the management of parturients with hypertrophic obstructive cardiomyopathy (HOCM). The maternal-fetal benefits of spinal anesthesia may be outweighed by the risks of rapid afterload reduction in patients with HOCM. We chose a continuous spinal anesthetic and managed hemodynamic changes with a LiDCO (Lithium Dilution Cardiac Output) monitor.

Case Report: A 23-year-old multiparous patient with a history of chronic hypertension, type II diabetes mellitus, cocaine abuse, and HOCM was admitted at 31 weeks gestation with the diagnosis of preeclampsia based on worsening headaches, elevated blood pressures, and proteinuria. Physical exam was unremarkable. A transthoracic echocardiogram was obtained and revealed basal septal predominance (2.2 cm in diastole), mild concentric left ventricular hypertrophy, mild mitral regurgitation, and chordal systolic anterior motion of the mitral valve. The obstetrical team wanted to proceed with a primary Cesarean section. Anesthesiology was consulted and formulated a plan that included a continuous spinal as the primary anesthetic. Standard anesthetic monitors were used, with the addition of an arterial line with LiDCO monitor. The LiDCO was not calibrated with lithium and was used as a hemodynamic trend monitor. The spinal was dosed with ¼ to ½ mL of a mixture of hyperbaric bupivacaine 12 mg, fentanyl 25 mcg, and morphine 0.2 mg at 5 minute intervals until an adequate sensory level was obtained. Hemodynamic changes were quickly treated using intermittent doses of phenylephrine to maintain hemodynamic parameters in a normal range.

A female infant was delivered with Apgars of 8 and 9. The mother remained hypertensive but hemodynamically stable during the remainder of surgery. She did well postoperatively and was discharged home two days after delivery. Her infant, who was admitted to the NICU briefly, was discharged home twenty four days after delivery.

Discussion: This case illustrates one technique for safely managing a patient with HOCM. The use of a continuous spinal anesthetic allows a more gradual dosing of local anesthetic and therefore reduces the risk of rapid afterload reduction. The use of an arterial line connected to an uncalibrated LiDCO monitor allowed continuous monitoring of blood pressure as well as the trends of cardiac output and systemic vascular resistance (1). Measurement of these trends has been shown to be a clinically valuable and reliable alternative to more invasive monitors (2).