Management of Eisenmenger’s Physiology and Severe Pulmonary Hypertension during Induction of Labor and Emergent Cesarean Delivery

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Introduction: Severe pulmonary hypertension progressing to Eisenmenger’s physiology is particularly dangerous in the setting of the physiologic cardiovascular changes in pregnancy. The associated morbidity and mortality is so high that women are encouraged to avoid pregnancy or terminate a pregnancy to protect their own health. We describe management strategies established a priori for labor induction and the ultimate course necessitated by emergent cesarean delivery for umbilical cord prolapse in a patient with suprasystemic pulmonary hypertension and right-left shunt.

Case Report: A 32 year old female, G2P1, at 34 weeks’ gestation was admitted for induction of labor due to large atrial septal defect, Eisenmenger’s physiology, and severe pulmonary hypertension with pulmonary artery systolic pressures of 130-160 mmHg. Past medical history included pulmonary emboli requiring inferior vena cava filter and chronic anticoagulation. The patient was admitted to the Medical Intensive Care Unit for labor. Continuous intrathecal labor analgesia was performed with sufentanil 5 mcg/hr in early labor and the addition of low-dose bupivacaine (0.5 mg/hr) as labor progressed. Hemodynamic stability was maintained with this regimen. Oxygen was administered via face mask at 8L/min to maintain SpO2 of 82-88%. Due to her high risk for thromboembolic disease, unfractionated heparin infusion was started on admission, stopped for placement of the intrathecal catheter, and then resumed at 400 units/hr. Artificial rupture of membranes was performed at a cervical dilation of 5 cm, resulting in umbilical cord prolapse requiring emergent cesarean delivery. General anesthesia was accomplished with succinylcholine, etomidate, midazolam, desflurane, and nitric oxide. Pressure support ventilation with spontaneous ventilation was utilized. At the case’s end, nitric oxide was discontinued and the patient was extubated. Post-operative care included continuous intrathecal sufentanil for 24 hours, followed by intrathecal morphine and resumption of her anticoagulation. The patient was discharged home on post-operative day 19 but expired 14 days later.

Discussion: For patients with Eisenmenger’s syndrome, communication among care-providers is vital. A clear plan for delivery and management of potential emergencies must be made between the patient and all practitioners. Continuous intrathecal analgesia was chosen for labor due to its reliability and titratability. General anesthesia was chosen for cesarean delivery due to the urgency of delivery and high risk of hypotension with conversion of to surgical anesthesia. Regardless of the anesthetic technique chosen, caution must be employed to minimize hypotension, hypoxemia increases in pulmonary vascular resistance, and right heart strain. Anticoagulation requirements must be addressed and individualized to each patient. Finally, despite the best efforts of skilled physicians, many of these patients will die in the peripartum period.