Abstract # 245

Intensive Care Unit Management of a Parturient with Severe Preeclampsia Complicated by Postpartum Hemorrhage, Refractory Hypertension and Respiratory Failure

Abstract Type: Case Report/Case Series
Vanessa G. Henke, M.D.; Jonathan E. Charnin, M.D.
Massachusetts General Hospital

Introduction: Preeclampsia is a leading cause of maternal and neonatal morbidity, mortality and intensive care unit (ICU) admissions. Severe preeclampsia typically involves increased systemic vascular resistance, contracted plasma volume and increased cardiac output. However, the incidence of left ventricular dysfunction in severe preeclampsia is approximately 15%, cardiac output may fall, and severe preeclampsia is a leading cause of peripartum pulmonary edema. Admission to the ICU and invasive monitoring should be considered in severely preeclamptic parturients at the highest risk of complications.

Case Report: A 37-year-old G2P1 woman with chronic hypertension, pregnant with triplets presented with severe preeclampsia at 27 weeks' gestational age. Due to worsening twin-twin transfusion syndrome, partial placenta previa and hypertension (in the 170/100 mmHg range) refractory to aggressive oral antihypertensive therapy, the patient underwent cesarean delivery under spinal anesthesia. Two hours post-operatively, she developed profuse vaginal bleeding, abdominal distension and hypotension due to intraperitoneal and intrauterine hemorrhage, which slowed after the administration of 13 units of packed red blood cells and 12 units of fresh frozen plasma via a rapid infusion system. As fluid resuscitation continued, the patient was transferred to the surgical ICU, dyspneic with hypoxic respiratory failure, and systolic blood pressure of 160 mmHg. Bilateral positive airway pressure ventilation augmented preoxygenation before intubation. For the next five days, hypertension (up to 200/120 mmHg) was managed with intravenous nitroglycerin, labetalol and hydralazine. A pulmonary artery catheter helped to optimize antihypertensive therapy and diuresis, and the patient was extubated on postoperative day 4. The clinical picture was most consistent with transfusion associated circulatory overload, and concurrent pulmonary embolism was ruled out via computed tomographic angiography. Ultimately, with gradual resolution of her presumed renal microangiopathy, the patient's antihypertensive requirements declined.

Discussion: Close coordination between intensivists and the obstetrical and obstetric anesthesia teams is helpful for high-risk patients with severe preeclampsia. While there are not explicit societal criteria for the ICU transfer of severely preeclamptic parturients, ICU admission allows for sophisticated hemodynamic monitoring, and aggressive antihypertensive therapy and diuresis, which can attenuate and help manage peripartum complications such as respiratory failure, hemorrhage and cerebrovascular complications. A rationale for risk stratification and ICU admission for patients with severe preeclampsia is discussed, followed by discussions of the differential diagnosis of hypoxia in severe preeclampsia and the evidence supporting invasive monitoring and pulse waveform analysis in parturients with severe preeclampsia.