

Lessons of Severe Pulmonary Arterial Hypertension in the Parturient

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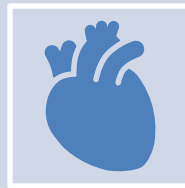




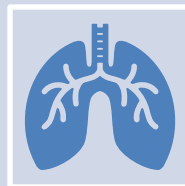
Lessons of Severe Pulmonary Arterial Hypertension in the Parturient



Increased progesterone and estrogen concentration →



Significant increase in cardiac output (CO) and pulmonary blood flow, but pulmonary arterial pressures (PAP) remain the same →



Reduction in pulmonary vascular resistance (PVR) →
Increased strain on the right ventricle (RV) especially in the first 36 hours post partum

BACKGROUND



Lessons of Severe Pulmonary Arterial Hypertension in the Parturient



A 23 year-old woman with known genetic group 1 pulmonary arterial hypertension (PAH) and preterm labor underwent an urgent cesarean section at 31 weeks. Upon admission at 28 weeks for monitoring, her transthoracic echocardiogram (TTE) showed enlarged RV with elevated RV systolic pressures (RVSP) of 37-52. Cesarean section was notable for suprasystemic PAPs exceeding 140mmHg. Post operatively, she was admitted to the intensive care unit intubated, sedated, on inhaled nitric oxide and intravenous Treprostinil. Her post operative course was complicated by mixed shock with continued suprasystemic PAPs. ECMO was discussed but ultimately deferred due to her momentary compensation.

Nitric oxide and sedation were weaned on post-delivery day (PDD) 2, but that night cardiac indicators worsened. On PDD 3, she became acutely bradycardic and hypotensive which ultimately deteriorated into cardiac arrest. After 35 minutes of chest compressions, extracorporeal membrane oxygenation (ECMO) cannulation did not occur and resuscitation attempts were stopped.

CASE DESCRIPTION



Lessons of Severe Pulmonary Arterial Hypertension in the Parturient



- Maternal PAH warrants early multidisciplinary peripartum planning
- False physiologic reassurance happens, especially immediately post partum given sudden volume shifts leading to RV failure
- Early cannulation and slow wean of pulmonary vasodilators and inotropic support.
- Careful use of narcotics post partum given risks with hypercapnia and hyperoxia

TEACHING POINTS