Successful resuscitation from amniotic fluid embolism with extracorporeal membrane oxygenation

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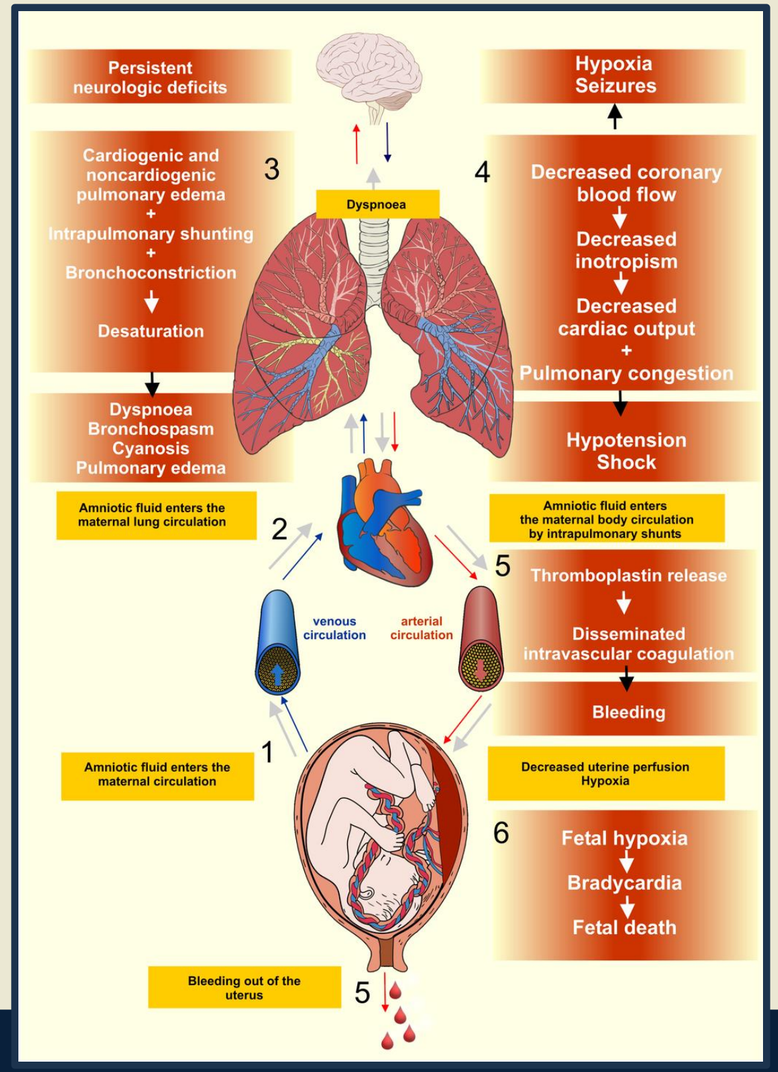
Background

- Amniotic fluid embolism (AFE) is a rare yet potentially catastrophic complication of pregnancy
- AFE is characterized by sudden cardiopulmonary collapse, disseminated intravascular coagulation (DIC), and high mortality rate

Case Presentation

24-year-old G4P1021 at 38 weeks gestation admitted for induction of labor for new onset hypertension. Past medical history of iron deficiency anemia, asthma, and variegate porphyria; past surgical history of two pregnancy terminations 2° acute porphyria attack

- Induction of labor with misoprostol and oxytocin
- Day 2 of induction, patient experienced a seizure, followed by respiratory distress and hypotension
- Fetal bradycardia prompted emergent transfer to operating room (OR)



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Anesthetic Management

- Patient was pulseless on arrival to OR
- ACLS protocol was initiated with chest compressions, IV epinephrine, and endotracheal intubation
- Emergent cesarean section with delivery of fetus within 3 minutes arrival to OR
- Apgar scores of 3,5 and 9 at 1,5 and 10 minutes respectively
- The patient developed DIC, massive transfusion protocol was initiated
- Central venous lines and arterial line were placed

- Transesophageal echocardiogram (TEE) revealed right ventricular dilation, a partially filled left ventricle and a widened pulmonary artery without visible pulmonary clots
- Left femoral arterial and venous sheaths placed
- **Veno-arterial ECMO (VA-ECMO) was established within 60 minutes**
- The patient was transferred to Intensive Care Unit
- The patient was successfully weaned from VA-ECMO and discharged home neurologically intact following a two-month hospital stay

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Conclusion

- The sudden onset of cardiopulmonary collapse, DIC, and dilated right ventricle was most consistent with AFE, though this patient's history was significant for seizures and complications 2° to acute porphyria attacks.
- AFE occurs in approximately 1 in 40,000 births, with a 20-60% mortality rate. [1,2] It is the second leading cause of peripartum maternal death and the primary cause of peripartum cardiac arrest.[3]
- Diagnosis of AFE is primarily clinical.[4]
- Management is mainly supportive and resuscitative, with immediate cesarean delivery improving outcomes for both mother and baby.
- Early TEE, rapid VA-ECMO implementation, and a multidisciplinary approach were key to the patient's successful outcome.
- This case demonstrates that prompt recognition, immediate resuscitation, and advanced interventions like VA-ECMO can lead to favorable outcomes in AFE management. Further research is needed to improve early diagnosis and treatment strategies for this rare but life-threatening condition

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