Amniotic Fluid Embolism

INCIDENCE: 2-8/100,000 deliveries worldwide
Rare but catastrophic/ 10% of all maternal deaths

RISK FACTORS:
- Advanced maternal age
- Multiparous
- Hypertensive disorders
- Placental abnormalities
- Chronic cardiovascular disease
- Induction/augmentation of labor
- Operative deliver
- Placental abruption
- Manual removal of placenta
- Amniocentesis
- Polyhydramnios
- Intrauterine fetal demise

DIAGNOSIS:
Mostly clinical relies on exclusion
Sudden hypoxia, hypotension & coagulopathy

DIFFERENTIAL DIAGNOSIS:
PE
Anaphylaxis
Septic shock
Myocardial Infarction/MI
Eclampsia

MANAGEMENT & RESUSCITATION ALGORITHM

Early Recognition Of AFE

Immediate Maternal Resuscitation
ABC-Oxygenation, Intubation, CPR

Haemodynamic support
Vasopressors
Inotropes
Aggressive IV Fluids
Consider ECMO for refractory shock or severe respiratory failure

Manage Coagulopathy
Massive Transfusion Protocol
Fibrinogen, Cryoppt, TXA,rFVIIa
Uterotonics if PPH

Consider Perimortem Caesarean Delivery PMCD
Deliver within 5min if cardiac arrest

ICU Management & Multisystem Support
Ventilation, Haemodynamics, Renal Support

Maternal & Neonatal Survival
Risk of Long- Term Neurologic Injury

PATHOPHYSIOLOGY

Trigger event:
Membrane rupture, Labour, Trauma

Phase 1: Entry of Amniotic fluid
Immune activation and vasospasm

Pulmonary Vasospasm
Increase Pulmonary pressure

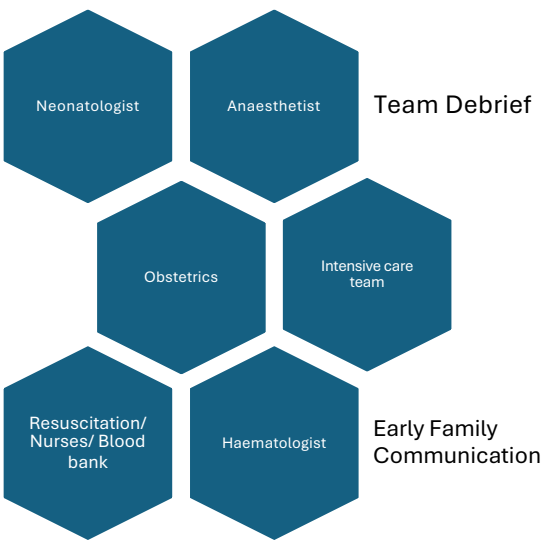
Right Heart Failure
Decreased Cardiac Output

Phase 2: Inflammatory storm
Cytokines, leukotrienes, Thromboxane

Disseminated Intravascular Coagulation (DIC)

Haemodynamic Collapse
Multi-Organ Failure, Death

Multidisciplinary Team



The Most Useful Bedside Tests:
echo + point-of-care fibrinogen/ROTEM

BIOMARKERS-Investigated for Diagnosis:
- Zinc coproporphyrin-specific but needs validation
- Inflammatory cytokines
- Serum tryptase
- Amniotic fluid component
- Sialyl-Tn Antigen

MCQ BANK

Which of the following is the most appropriate airway/ventilation strategy in AFE-associated ARDS?

A:High tidal volume ventilation
B:Low PEEP
C:Low tidal volume, lung-protective ventilation
D: 100% FiO_2 for all patients indefinitely
E: Avoid proning due to pregnancy

Which coagulation abnormality is most commonly associated with AFE?

A: Isolated thrombocytopenia
B: Prolonged PT but normal fibrinogen
C: Hyperfibrinogenemia
D: Consumptive coagulopathy with low fibrinogen
E: Heparin-induced thrombocytopenia

Which pharmacological strategy is recommended for severe pulmonary hypertension in AFE?

A: Intravenous nitroprusside
B: Inhaled nitric oxide
C: Calcium channel blockers
D: ACE inhibitors
E: IV beta blockers

Prognostic Factors in AFE?

Time to resuscitation.
Severity of initial CVS collapse.
Degree and duration of hypoxia.
Severity of DIC and haemorrhage.
Need for ECMO / vasopressors.
Presence of neurological injury.

The patient remains in refractory shock with severe hypoxia. She is 2 hours post-delivery and bleeding is now controlled. Which ECMO modality is most appropriate?

A:VV-ECMO because oxygenation is the main problem
B: VA-ECMO due to circulatory collapse and RV failure
C: ECMO is contraindicated in postpartum patients
D:ECMO should not be used because of previous bleeding
E: Wait 24 hours to reassess

Best fluid strategy in AFE after initial resuscitation?

A: Aggressive crystalloid flooding
B: Minimal fluid, high-dose vasopressors
C: Echo-guided cautious fluid titration
D: Large volume colloid infusions
E: No fluids at all