Management of a parturient with malaria and severe preeclampsia requiring cesarean delivery and emergent ECMO

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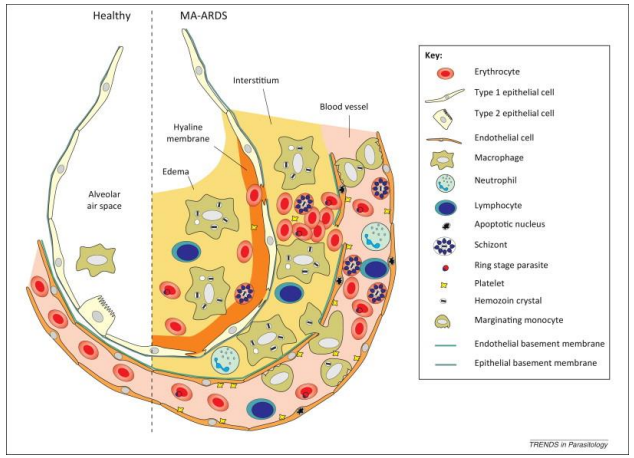
Introduction

- While malaria is rare in the US, it can have a significant impact on pregnant women
- Respiratory complications, including pulmonary edema are commonly observed in severe cases
- Severe malaria with lung involvement is most often associated with *Plasmodium falciparum* infection



Pre-operatively

- G3P1101 at 33w5d presented to OSH after recent immigration to US from Africa with fever, malaise, dyspnea, pancytopenia, hypertension, and hypoxia
- Pre-eclampsia with severe range BP and thrombocytopenia
- COVID-19+ and Malaria+
  - Started on Artesunate and Remdesivir
- Requiring HFNC for ongoing hypoxia and respiratory failure due to pulmonary edema
- Recommended for rCS, 2/2 pre-E, worsening respiratory status

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Intra and Post-op

- Upon arrival to the OR, SpO2 of 95% w/ significant orthopnea
- RSI with propofol and succinylcholine; 6.5 ETT placed under video laryngoscopy
- SpO2 to <50% immediately following intubation
- ETT position confirmed with +EtCO2 capnograph, auscultation and VL
- Incision was made and baby was delivered 11min post-induction
- Pt remained severely hypoxic (ABG: 7.18/56/45/20) and ECMO consultation was initiated
- Pt was placed on ICU ventilator in the interim with minor improvement in respiratory mechanics (SpO2 ~60%)
- Pt cannulated for VV ECMO with drastic improvement of respiratory status
- Hysterotomy closed, hemostasis achieved, fascial layers and skin closed
- ABG intra-op s/p ECMO 7.3/39/146/19
- Pt admitted to ICU post-operatively
- AHRF improved with aggressive diuresis and ongoing anti-microbial treatment
- Pt was decannulated from ECMO on POD #5
- Extubated POD #7
- Discharged to home on POD #12

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Discussion

- Respiratory complications occur in 20–30% of severe malaria cases; ARDS has up to 80% mortality without prompt treatment
- *Plasmodium falciparum* is most associated with severe lung issues like ALI and non-cardiogenic pulmonary edema
- Pregnant women are at higher risk due to immune and physiological changes that increase lung inflammation and parasite sequestration
- Coexisting pre-eclampsia worsens respiratory outcomes by increasing endothelial damage and fluid leakage
- ARDS may worsen 1–3 days after starting treatment due to an inflammatory response during parasite clearance
- ECMO may be used when standard ventilation strategies fail

Sources

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