The Use of Veno-arterial Extracorporeal Membrane Oxygenation (ECMO) in the Care of a Preterm Infant with COVID-19 Infection

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Background

- Coronavirus disease 2019 (COVID-19) was first reported in November 2019, currently with over 290 million cases reported
- Neonates represent a very small proportion of those patients
- Most reported cases in infants and neonates are community acquired with mild symptoms
- Very few require intensive care or invasive support for acute infection
- NICU graduates with residual lung disease may be at continued poor lung compliance

Case

- 2-month-old ex-26 WGA infant, Bwt 915 grams
- Diagnoses: BPD (1L 40%) and small VSD
- COVID exposure from parent on DOL 82
- COVID 19 symptoms & diagnosis on DOL 84
- Acute respiratory failure on DOL 87 (Figure 1A&B)
- Required VA-ECMO support for 23 days (Figure 2)
- Complications included:
  - Liver dysfunction
  - Renal dysfunction
  - Abnormal HUS and MRI findings (Figure 3)
  - Continued poor lung compliance
  - Successful decannulation on DOL 110 to conventional mechanical ventilation despite suboptimal lung compliance
  - Extubation on DOL 141
  - Currently receiving medical and developmental support

Discussion

- NICU graduates with residual lung disease may be at a higher risk for severe illness from COVID-19
- Exposure prevention is not only important in the community but also within the hospital and in the patient rooms
- Must balance the risk of exposure to COVID-19 with developmental and medical appropriate care
- To our knowledge this is the smallest patient to require ECMO for COVID-19, and the first neonate to survive post-decannulation

References