Indications for COVID VV ECMO

Any consideration for ECMO will be contingent on the availability of hospital resources, consideration of current hospital census and based on a team decision by the patients' providers.

1. Respiratory Failure as defined below:
   A) Severe reversible hypercarbic respiratory failure (pH < 7.2)
   B) Severe reversible hypoxemic respiratory failure (PaO2:FIO2 < 100) due to ARDS despite maximal medical therapy, to include (unless contraindicated):
      i. Low tidal volume ventilation
      ii. PEEP optimization
      iii. Prone positioning
      iv. Consideration of inhaled vasodilators

2. Further indications for placement on ECMO will follow guidelines in the UVMMC ECMO policies and procedure document.

Relative contraindications for ECMO placement

1. D-dimer > 1000 ng/ml
2. SOFA > 11
3. Age > 60 years (relative), >70 years (absolute)
4. RESP score < 0
5. No DPOA available
6. Prolonged mechanical ventilation > 7 days

Considerations of conditions that may have a higher mortality: hypertension, diabetes, significant tobacco use history, obesity, immunocompromised, polysubstance/alcohol abuse, low/impaired baseline level of function, elevated troponin and elevated LDH.

Absolute contraindications for ECMO placement

1. Underlying comorbidities including advanced heart failure, underlying advanced lung disease, advanced cirrhosis, end-stage renal disease.
2. Acute organ failure:
   a. Left ventricular ejection fraction <45% (will not use veno-arterial ECMO for COVID+ patients, i.e., severe septic/stress cardiomyopathy or myocarditis)
   b. Acute liver injury with synthetic dysfunction
   c. (Oligoanuric AKI may become an absolute contraindication if staffing not available for renal replacement therapy)
3. Significant shock requiring pressor support
4. Active bleeding and inadequate hemostasis, contraindications to anticoagulation, or inability to accept blood products
5. Active intracranial hemorrhage, cerebral vascular accident, poor neurologic exam
6. Prior cardiac arrest

- Patient must be willing to undergo tracheostomy if warranted.
- After 7-10 days on ECMO a reassessment of its utility will be performed.
- All patients will be transferred to dedicated ECMO center if bed is available.

References:
1) http://www.respscore.com/
   https://doi.org/10.1016/S0140-6736(20)30566-3