Indications for COVID VV ECMO

Any consideration for ECMO will be contingent on the availability 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. SOFA > 11
2. Age > 60 years (relative), >70 years (absolute)
3. RESP score < 0
4. No DPOA available
5. Prolonged mechanical ventilation > 7 days
6. Significant shock requiring high dose vasopressor support

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. Active bleeding and inadequate hemostasis, contraindications to anticoagulation, or inability to accept blood products
4. Active intracranial hemorrhage, cerebral vascular accident, poor neurologic exam
5. 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 and once a bed is available.

References:
1) http://www.respscore.com/
2) Fei Zhou*, Ting Yu*, Ronghui Du*, Guohui Fan*, Ying Liu*, Zhibo Liu*, Jie Xiang*, Yeming Wang, Bin Song, Xiaoying Gu, Lulu Guan, Yuan Wei,Hui Li, Xudong Wu, Jiuyang Xu, Shengjin Tu, Yi Zhang, Hua Chen, Bin Cao. *Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study*. Lancet 2020.
3) Mustafa AK et al. Extracorporal Membrane Oxygenation in patients with COVID-19 in severe respiratory failure. JAMA Surgery. August 11, 2020.

Updated 12/07/2020 Owner: Gil Allen, Chief of Critical Care