ECMO SUPPORT FOR PATIENTS WITH COVID-19

Recommendations

- Patients with COVID and severe ARDS may be referred to UW Medicine for VV ECMO.
  a. Patients must meet stringent inclusion and exclusion criteria to be considered for transfer and each patient will be reviewed on a case-by-case basis. Criteria may be revised over time in order to optimally utilize this scarce resource.
  b. Given complex decision making involved, referrals and patient transport should occur during the day.
- The UW Medicine ECMO Retrieval Team will not be transporting COVID-19 patients on ECMO.
- The UW Medicine ECMO programs will continue to work with other programs in the Pacific Northwest ECMO Consortium to coordinate resources, exchange experience and knowledge, and potentially develop care guidelines for this patient population.
- The ECMO program leadership and managers will maintain close communication with hospital leadership and ICU staff to continually assess capacity to offer ECMO.

Indications for COVID VV ECMO referral

- Severe reversible hypercarbic respiratory failure (pH < 7.2)
- Severe reversible hypoxemic respiratory failure (PaO2:FIO2 < 100) due to ARDS despite maximal medical therapy, to include (unless contraindicated):
  - Low tidal volume ventilation
  - PEEP optimization
  - Prone positioning
  - Consideration of inhaled vasodilators
  - Consideration of neuromuscular blockade

Contraindications for COVID VV ECMO

- Age >60
- Underlying comorbidities including heart failure, underlying advanced lung disease, cirrhosis, end-stage renal disease, polysubstance/alcohol abuse, low/impaired baseline level of function
  - May also include hypertension, diabetes, significant tobacco use history, obesity, immunocompromise (which may have higher COVID mortality)
- Acute organ failure:
  - Left ventricular ejection fraction <45% (will not use veno-arterial ECMO for COVID+ patients, i.e., severe septic/stress cardiomyopathy or myocarditis)
  - Acute liver injury with synthetic dysfunction
  - Oligoanuric AKI may become an absolute contraindication if staffing not available for renal replacement therapy
- Prolonged mechanical ventilation > 7 days
- Significant shock requiring > 0.5 mcg/kg/min norepinephrine or equivalent
- Active bleeding and inadequate hemostasis, contraindications to anticoagulation, or inability to accept blood products
- Active intracranial hemorrhage, cerebral vascular accident, poor neurologic exam
- Prior cardiac arrest
- No DPOA available