VA ECMO Management "Cheat" Sheet

Suzanne Bennett, MD
Sam Galvagno, DO, PhD, FCCM

Note: Institutional practices vary. This is merely a sample of some general goals for management of patients requiring VA-ECMO.

1. Initial ventilator settings
    a. Standard lung protective strategies with goal of early extubation
    b. Titrate sweep for PaCO2 35-45 mmHg, if RV dysfunction 35-40 mmHg
2. ECMO Flow: target **CI ≥ 2.2** l/min; **SvO_2 > 65%**
3. Keep Hgb > **8**gm/dL (Hct~**24**gm/dL)
4. Keep platelets > **40**K (assuming no bleeding)
5. aPTT goal **60-80s** with IV unfractionated heparin
    a. Alternatives: ACT-**180-220s** & anti-Xa-**0.3-0.7**
6. Daily hemolysis labs: LDH, plasma free Hgb
7. Initial labs, every 2-4 hours, 24-48 hours after cannulation, lab frequency can be reduced (every 8-12 hours)
    a. CBC, BMP, Ca, Mg, PO4, ABG (patient and ECMO)
    b. LFTs & lactate prn
8. LV distension/pulmonary edema strategy
    a. Daily TTE, PA cath with PCWP
    b. Pharmacologic measures: Inotropes, vasodilators
    c. Mechanical unloading of LV (IABP, Impella, LV vent)
9. RV failure strategy
    a. Epinephrine/Dobutamine/Milrinone and inhaled pulmonary vasodilator (if available)
    b. Serial TTE and/or PA catheter monitor
10. Distal limb ischemia strategy
    a. Distal perfusion cannula (SFA/posterior tibial/dorsalis pedis artery)
11. Recirculation strategy
    a. Harlequin syndrome/North South
    b. Measure PaO_2 in right radial artery
    c. Optimize oxygenation; LV venting
    d. Convert to VAV configuration
12. Volume removal/diuresis
    a. Aggressive diuresis with strong consideration for ultrafiltration as needed (1-2 liters/day)
13. Sedation
    a. Propofol, dexmedatomidine, fentanyl, ketamine options
    b. May use NMB if needed
    c. Wean as tolerated with goal of early extubation
14. Weaning and Liberation from ECMO strategy
    a. Hemodynamic and echocardiographic assessments while reducing flow
    b. Able to maintain a SvO2>65%, SaO2>90% w/ECMO flow <1.5 l/min & hemodynamically stable with good RV function
    c. Options:
        i. Bridge to Recovery
        ii. Bridge to durable MCS/VAD
        iii. Bridge to Transplant
15. Provider must accompany the VA ECMO patient for every travel (will be minimized during COVID-19) – provider does not need to stay with patient during procedure or test but needs to be on travel to and from unit. Specialist/nurse to stay with patent while off unit