# Pump Controlled Retrograde Trial Off (PCRTO) ECMO: Guidelines

## PERSONNEL

- Intensivist, CT Surgeon, Cardiologist (inform ahead of time if echo is required), ECMO Specialist, Perfusionist, Bedside Nurse, CICU Senior Resident / Resident, RT
- Any other personnel required?
- Perform a time-out before start of PCRTO

## PLAN AHEAD

- Discuss duration of intended PCRTO (30min -2 hours) and timing of decannulation if successful
- Target retrograde blood flow rate based on size of patient (suggested minimum 100-200ml/min)
- Target ACT for PCRTO duration (200-220 or higher if higher risk of clot burden, in discussion with CTS/ CICU). Consider heparin bolus if needed, check ACT before start
- Plan frequency of blood sampling during PCRTO: ABG, venous blood gas (MVO2)
- *Femoral cannulation: Distal perfusion catheters management - will need to be clamped and disconnected or flushed with heparin saline solution during PCRTO if not disconnected

## PREPARATION FOR WEAN

- Vasoactive support/ Medications, Ventilator adjustment, Pacemaker if required, iNO if required, Adequate vascular access, Patency of lines for blood sampling during.
- Clarify ongoing need for CRRT/ UF and discontinue these ideally before start of trial
- Monitoring: HR, IABP, CVP, NIRS, ETCO2
- Obtain baseline parameters (Vital Signs and ABG/VBG)
- Put up signage: Retrograde ECMO Flow in Progress, Sweep gas is turned off

## PERFUSIONIST AND ECMO SPECIALIST

- Wean ECMO flow gradually to 200ml/min, ECMO FiO2 21% and sweep gas minimal rate 200cc
- Reduce RPM further until retrograde flow is achieved, reverse flow probe
- Aim for retrograde flow ~10% of patient's body weight, suggested minimum 100-150 ml
- Once retrograde flow is started, disconnect sweep gas

## DURING PCRTO

- Document: Patients vital signs, ABG Q15min x 2 then Q30min till end of PCRTO and Echo parameters per cardiology
- Monitor ECMO parameters: Blood flow rate, RPM every 5 min, ECMO circuit for presence of clot – adjust anticoagulation targets accordingly if necessary
- If femoral distal reperfusion catheter in situ: monitor LL circulation

## TERMINATION OF PCRTO

- When target PCRTO duration achieved
- Patient demonstrates intolerance to weaning
- If decannulation is not following PCRTO imminently (within 2 hours) – stop PCRTO. Restart sweep gas, increase pump speed and discuss what ECMO flow patient is to remain on till decannulation
- Remove PCRTO signage
- ECMO specialist and perfusionist to perform circuit check: look for new clot formation
- Document patient's vital signs at the end of trial