Neurological care for ECMO patients

Neurological complications

- Anoxic injury acquired prior to ECMO
- Intracranial hemorrhage (ICH)
- Embolic infarcts
- Hypoperfusion injury
- Symptomatic seizures

Nursing Care

- Monitor for clinical events
- Push event button on EEG machine for suspected clinical events
- •Alert MD for suspicious or recurring events

Seizure Management

- Clinical seizure
 1.Ativan 0.1 mg/kg (max 4mg/dose) PRN seizure then load with Pb or FosP <u>Electrographic seizures</u>
 - Phenobarbital 20 mg/kg load and start
- maintenance 5mg/kg/day divided BID
- Fosphenytoin 20mg/kg load and start maintenance 5mg/kg/day divided BID - Consider additional Phenobarbital
- 10mg/kg load for continuing seizures

AED Monitoring

AED Monitoring

- •Anticipate need for repeat load and higher maintenance dosing due to multiple med interactions and increased blood volume.
- CRRT/dialysis may impact AED levels.
- •Obtain levels 2 hours post initiation of

ECMO or dialysis. Phenobarbital: (Goal 20-40)

- •Level 2 hours after loading dose
- •Daily phenobarbital troughs

Fosphenytoin: (Goal 15-20)

- •TOTAL phenytoin level 2 hours after loadina dose
- •Daily TOTAL phenytoin troughs

Neuroimaging

- Portable CT: Limited availability nights and weekends.
- Post arrest: If concern for catastrophic injury consider CT. Best to obtain immediately after arrest/event and next at 48 hours post event. Scan at 24 hours not likely to change management.
- ICH: obtain to define extent of ICH •MRI: Not available for ECMO patients

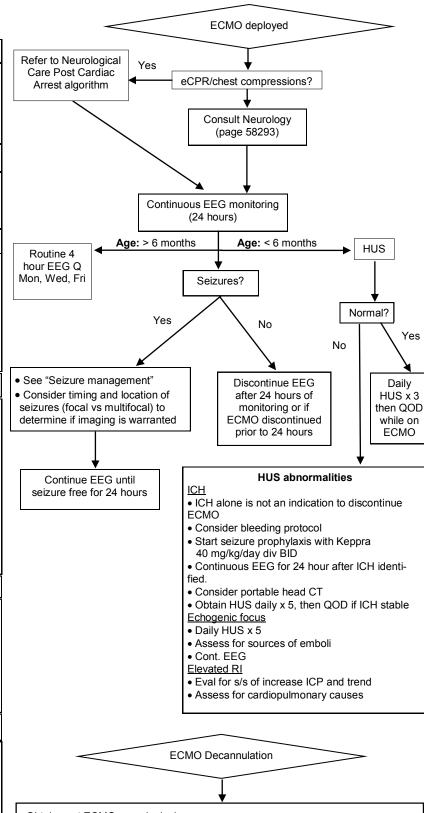
Other Considerations

ECMO requires anticoagulation.

Consider bleeding protocol for patients with intracranial hemorrhage on ECMO. - Intracranial hemorrhage alone is not an indication to discontinue ECMO.

Circuit change is high risk for neurological injury (e.g. emboli)

ECMO indication (elective vs emergent): Emergent deployment --> Increased risk for hypoxic ischemic injury and seizures.



- Obtain post ECMO neurological exam
- •Obtain MRI brain and MRI/MRA neck (if cannulated in neck) once medically stable • Anticipate outpatient follow up in Neurology PICU follow up clinic after discharge