Neurologic Monitoring and Prognosis in ECPR Patients

- Acute brain injury (ABI) in the ECPR population is common and increases mortality.

- Neurological approach, definitions, and outcomes are not well optimized (RCTs) in the current literature.

- ABI may occur early after ECMO cannulation – hypoxic ischemic brain injury with refractory cardiac arrest (CA) + other types of ABIs early during ECMO support (first 24-72 hours).

- Traditional CA neuroprognostication algorithm has not been tested or validated in ECPR. ECMO patients are more complex physiologically and pathologically. Early WLST is very common in ECMO patients, which poses a challenge in prognostication.

- Early ABI detection with neuromonitoring is important – neurological prognostication and outcome studies should be based on accurate timing and mechanisms of ABI.

- Innovative approach – ongoing and future studies such as portable bedside POC MRI (SAFE MRI ECMO) and biomarker studies (DELTA ECMO study and IMPROVE ECMO study) will be helpful.