**EEG for electrocerebral inactivity**

The Brain Death Examination – What every UM Epilepsy fellow needs to know.

If you are consulted by a provider to perform a brain death EEG, this is what you should know:

1) Please refer to the institutional guidelines for brain death in case the consulting team is confused about how to use the study. Generally they will know, but it is good to be aware of the utility relative to other tests.

The site for this brain death guideline, updated regularly, is http://www.med.umich.edu/i/policies/umh/03-01-020.html

The pertinent info as of 2012 is that there must be a judgment that there is irreversibility of cessation of brain function, this is the responsibility of the clinical team. EEG can help in the following cases presently (please check for updated guideline):

- a) Age greater than or equal to 31 days.
  - 1) With confirmation by angiography or EEG, two clinical examinations at least one hour apart.
  - 2) If confirmation by EEG or angiography is not done, yet an IRREVERSIBLE CAUSE is WELL ESTABLISHED, two clinical examinations at least 12 hours apart.
- b) Term newborn (37 weeks gestation) - 30 days of age
  - 1) Two clinical examinations - MINIMUM 24 HOURS APART. Confirmatory tests cannot be used to shorten this interval.

2) Realize that if the request is appropriate, and a brain death EEG will need to be performed, you and the EEG attending will need to be present for the majority of the test duration. If the test is being done after usual hours, this will require you and the attending to come into the hospital from home. The purpose of your presence is to document that the EEG is being run appropriately for brain death, that any confounding artifacts are identified and fixed if possible, and to do ET tube stimulation (suctioning etc.) or sternal rub if needed.

- a. How the techs should run the EEG: FPz and Oz need to be added, EKG needs to be running, LFF 0.5, HFF 70, most of the recording should be done at sensitivity 2 microV/mm. Record for 30 minutes, use double distance electrode montages, all impedances 100-5000 Ohms, tap each electrode individually during recording, do photic, auditory and pain stimulation peripherally.
- b. Frequent artifacts to consider include EKG, respirations, drips, dialysis or bed electricity, Swan Ganz catheter, pacemaker. If there is excessive artifact from scalp muscle, you may request neuromuscular blockade to be administered.
- c. The nurse, EEG attending, or EEG fellow can do sternal rub or ET suctioning or manipulation.

3) The attending will provide a written report in MiChart on leaving the unit, unless they convey the EEG will need to be further reviewed. Some oral report will also be given to the team. Please consult with the team if there is ongoing cerebral activity, or if other tests might be more helpful.