HISTORY: XX. This patient has coma following cardiac arrest. EEG is being done to evaluate for epileptiform activity and to help assess neurologic prognosis.   
MEDICATIONS:     
   
BACKGROUND:

SLEEP: Not seen

SEIZURES: None.   
RHYTHMIC AND PERIODIC PATTERNS: None     
SPORADIC EPILEPTIFORM DISCHARGES: None   
SEIZURES: None  
EVENTS: None  
CARDIAC MONITOR: No significant dysrhythmia.   
   
IMPRESSION: Abnormal EEG due to:   
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NOTES ON THE PROGNOSTIC SIGNIFICANCE OF ABNORMAL EEG PATTERNS IN PATIENTS WITH COMA AFTER CARDIAC ARREST:

In patients who have suffered from cardiac arrest and undergone targeted temperature management (TTM) resulting in a coma, certain EEG patterns may suggest a poor neurological prognosis, meaning that if they survive they are likely to either die or to have severe neurological deficits or persistent coma.

False positive rates have been estimated for each EEG pattern based on the TTM trial (Neurology. 2016 Apr 19;86(16):1482-90). False positive rates indicate the percentage of patients who had a good outcome despite showing the EEG pattern. For instance, a false positive rate of 10% means that only 10% of patients a good outcome had that EEG pattern. The 95% confidence intervals are provided to show the level of uncertainty in the estimates. These statistics are intended to be applied 72 hours after cardiac arrest, and in patients who undergo therapeutic hypothermia, EEG findings should be evaluated at least 24 hours after rewarming. The EEG findings and their estimated false positive rates 95% confidence intervals are listed below:

Abundant GPDs: (0 - 12)%

Abundant spike-and-wave discharges: (0 - 12)%

Suppressed background (with or without GPDs): (0 - 12)%

Burst-suppression (suppression >50%): (0 - 12)%

Discontinuous EEG: (0 - 12)%

Seizure(s): (0 - 12)%

Low-voltage: (4 - 28)%

Unreactive EEG: (14 - 52)%

Notes:

1. The precision of these statistics is limited because the trial included only 103 patients.

2. These statistics, like others in the prognostication literature, may be influenced by self-fulfilling prophecy bias.

3. These statistics apply to each finding in \*isolation\*, whereas additional data beyond the EEG must be considered in assigning a final neurological prognosis (e.g. neurological physical examination, somatosensory evoked potentials, imaging findings, etc.)

4. EEG patterns can evolve over time (improve or worsen), thus trend information may add additional prognostic value.

5. Rare cases of good outcomes have been reported in the literature despite the presence of each EEG pattern, thus a "poor prognosis" should NOT be interpreted as "0% probability" of a good neurologic outcome. EEG findings should be interpreted in the context of all available clinical data, and decisions to withdraw life sustaining therapies should not be based on the EEG pattern alone.

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Note on seizure risk / 2HELPS2B scores:

Interpretation of scores the risk of seizures in the next 72 hours for each Day 1 score is as follows:

Score = 0: risk <5%.; time needed< 4h \*

Score = 1: risk = 12%; time needed: 12h \*

Score >1: risk >25%; time needed: 24h \*

\* Duration of EEG monitoring needed for risk to decrease to <5%.

Assessment of the Validity of the 2HELPS2B Score for Inpatient Seizure Risk Prediction. JAMA Neurol. 2020 Apr 1;77(4):500-507.