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CONTINUOUS EEG IN THERAPEUTIC HYPOTHERMIA AFTER CARDIAC ARREST: PROGNOSTIC AND CLINICAL VALUE

William D. Freeman, Jacksonville, FL: We read with interest the study by Crepeau et al.[1] who reviewed EEG in cardiac arrest survivors. They found that when EEG was performed during hypothermic and early normothermic periods, it might yield useful prognostic information.

These findings are important in cardiac arrest patients who are under neuromuscular paralysis for hypothermia and may not be able to display motor findings of seizure, myoclonus, or status epilepticus. The data are also important to add to earlier prognostic information and seizure detection. We similarly studied our cardiac arrest patients from 2006 to 2012 (n = 72) at Mayo Clinic in Florida, and analyzed the available EEG findings retrospectively (n = 38) during hypothermia or early normothermic period.

Most EEGs were 20-minute recordings but some were continuously recorded. Similar to the authors, we also found that certain EEG patterns, specifically generalized periodic epileptiform discharges (GPEDs) or suppression-burst (S-B) pattern (n = 12), suggested a trend toward worse outcome (i.e., Cerebral Performance Category [CPC] 3–5) dichotomized against good outcome (CPC 1–2) when compared against all other EEG patterns (delta, theta, alpha, or mixed frequencies, n = 26 with poor outcome, n = 9 good outcome, $p = 0.087$).

Our study was smaller than the current study and did not use the authors' EEG classification scheme yet we believe that GPEDs and S-B are potentially ominous prognostic patterns indicating widespread anoxic brain injury. Foreman et al.[2] additionally showed that GPEDs may not be independently associated with poor prognosis alone, but are strongly predictive of nonconvulsive seizures and nonconvulsive status epilepticus, which can potentially add secondary brain injury to cardiac arrest patients.

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Author disclosures are available upon request (journal@neurology.org).

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William D. Freeman

Neurology 2013;81;855
DOI 10.1212/01.wnl.0000434144.98866.08