WriteClick: Editor's Choice

Editors' Note: Questions surrounding the prognosis of comatose patients are frequently among those that keep a neurologist awake at night. Authors Crepeau et al. studied the prognostic utility of continuous EEG in patients undergoing therapeutic hypothermia and rewarming. Freeman adds his own center's findings to the discussion.

Megan Alcauskas, MD, and Robert C. Griggs, MD

DOPAMINERGIC TREATMENT AND NONMOTOR FEATURES OF PARKINSON DISEASE: THE HORSE LIVES

J. Eric Ahlskog, Rochester, MN: Drs. Antonini and Albin[1] highlighted an important issue for patients with Parkinson disease (PD): treatment of not only motor but certain nonmotor symptoms. The referenced article by Storch et al.[2] illustrated the fact that many of these nonmotor symptoms have a dopaminergic substrate or contribution.

Although I appreciate the attention paid me in their editorial,[1] the article I published in *Neurology*® that they discussed[3] focused on the untreatable or poorly treatable burden of nondopaminergic problems afflicting advancing PD, both motor and nonmotor. Three problems were emphasized in that article[3]: "levodopa-refractory motor symptoms, dementia, and dysautonomia." The important distinction in that article was between dopaminergic and nondopaminergic, not motor vs nonmotor. It is well-recognized that many PD nonmotor symptoms are levodopa-responsive, and books addressing PD treatment thoroughly address levodopa treatment of nonmotor symptoms such as anxiety, insomnia, pain, urinary frequency, and akathisia.[4–6] Hence, "nonmotor" should not be conflated with "nondopaminergic."

One additional point is worth mentioning, reiterating from the editorial of Antonini and Albin[1]: "...optimizing dopaminergic therapies is a viable avenue to improve control of some disabling NMS [nonmotor symptoms] in PD and a worthwhile area for further clinical research." Lest we forget, we have levodopa therapy, which in my experience from referred patients, is often "saved for later" and when prescribed, is administered in very conservative doses. Unfortunately, "levodopa phobia"[7] persists. The nonmotor problems highlighted in the article by Storch et al.[2] should all benefit from medication adjustments and most importantly, optimizing levodopa therapy.

Author Response: Angelo Antonini, Venice, Italy; Roger Albin, Ann Arbor, MI: We thank Dr. Ahlskog for his thoughtful comments. We agree that not all nonmotor symptoms are dopamine-replacement responsive, but the spectrum of dopamine-replacement–responsive symptoms may be broader than we initially thought.[1] This includes cardiovascular disturbances, fatigue, mood, and attentional deficits that Storch et al.—and others—link to low or fluctuating dopaminergic delivery and dopamine receptor stimulation.[2,8–10]

We also agree that initiation of L-dopa therapy is too often delayed and that optimization of dopaminergic treatment, including optimization of L-dopa schedules and combination therapy with dopamine agonists, should be vigorously pursued. Motor complications and other fluctuating clinical features related to the relatively short half-life of L-dopa continue to be important management issues. Aggressive medical management should be pursued—particularly in younger patients—after evaluation of risks and benefits, including potential effects on dopamine-responsive nonmotor symptoms.

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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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