

**CHANGES IN CURRENT SOURCE DENSITY OF BENIGN EPILEPSY OF CHILDHOOD WITH CENTROTEMPORAL SPIKES FOLLOWING TREATMENT WITH OXCARBAZEPINE**

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**Purpose:** We aimed to detect clinical variables associated with extent changes of irritative zone in benign epilepsy of childhood with centrotemporal spikes (BECTS) after oxcarbazepine monotherapy.

**Methods:** BECTS patients with oxcarbazepine monotherapy were retrospectively reviewed. Changes in current source density (CSD) of the maximum negative points of interictal spikes prior to the start of oxcarbazepine treatment were compared with CSDs following oxcarbazepine treatment for 6–12 months. CSDs were obtained using low-resolution brain electromagnetic tomography (LORETA). Patients were divided into two groups based on the change in CSDs: increased-extent or decreased-extent group. Age of onset, seizure frequency before treatment, time interval between seizure onset and treatment start, time interval between the two EEGs, oxcarbazepine dosage at the follow-up electroencephalography, occurrence of daytime seizures, and seizure control were compared between the groups.

**Results:** Fourteen patients were enrolled. Seven patients were in the decreased-extent group and six in the increased-extent group; one patient was excluded due to no change in CSD. Only seizure control was significantly different between the two groups. Seizures were well-controlled in six of seven patients in the decreased-extent group (85.7%) but in only one of six patients (16.7%) in the increased-extent group ( $p=0.03$ ).

**Conclusion:** Seizure control may be associated with the extent of changes in the neuronal irritative zones of BECTS patients. We suggest that changes of CSD extent can be used as an imaging modality to evaluate clinical improvement in BECTS patients.