

## **Educational problems with underlying neuro-psychological impairments are common in children with benign epilepsy of childhood with centrotemporal spikes (BECTS)**

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**Background and Objective:** Epilepsy in children have wide spectrum of severity. Conditions like Lennox Gastaut syndrome are associated with multiple seizures, progressive mental decline and considerable disability. On the other hand, benign epilepsy with centrotemporal spikes (BECTS) is one of the commonest childhood epilepsies with good prognosis for seizure and neuro-psychological outcomes. But recent reports indicate that a significant number of children with BECTS can have neuropsychological impairments.<sup>1,2</sup> The objective of this study was to examine the educational performance and neuropsychological functions along with clinical and electrographic characteristics in a cohort of children with BECTS from South India.

**Methods:** We identified a cohort of children with BECTS by screening medical and EEG records of patients attending this Institute and their data were collected according to a standard protocol. Their educational performance was evaluated by parental interview. Neuropsychological and language tests were administered to children who had educational problems. Statistical analysis was done using the Chi square test.

**Results:** Fifty children (29 boys and 21 girls; mean age of onset of epilepsy  $7.8 \pm 2.9$  years) who met the criteria for BECTS were included in this study. Atypical seizure characteristics for BECTS were observed in 26 (52%) children. EEG showed typical centrotemporal spike and wave discharges in all children, 42% of them had a tangential dipole in the frontocentral region. An additional extra-rolandic focus in the EEG was found in 7 children (14%). Educational problems were identified in 27 children (54%). Nineteen out of 23 children (83%) who completed neuropsychological and language tests had neuropsychological or language impairments ( $p=0.003$ ). There was a significant correlation between occurrence of educational problems and absence of tangential dipole in the EEG ( $p<0.001$ ). Abnormal language function had a significant correlation with atypical seizure semiology ( $p=0.021$ ).

**Discussion and Conclusion:** More than half (54%) of the children with BECTS in this study had educational problems. Most of them had underlying neuropsychological and language impairments. There appears to be a subgroup with atypical seizure semiology and centrotemporal spikes without tangential dipole who are more likely to develop developmental language disability, neuropsychological impairments and accompanying educational problems. These children may need special evaluation and management under a multidisciplinary team.

### **References**

1. Fejerman N, Caraballo R., Tenenbaum S. Atypical evolutions of benign localization-related epilepsies in children: are they predictable? *Epilepsia* 2000; 41:380-90.
2. Deonna T, Zesiger P, Davidoff V, *et al.* Benign partial epilepsy of childhood: a longitudinal neuropsychological and EEG study of cognitive function. *Dev Med Child Neurol* 2000; 42:595-603.