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### Electro-clinical worsening in children treated with Carbamazepine/ Oxcarbamazepine: Concern for use of CBZ/OXC as an initial AED for focal epilepsy in children

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Carbamazepine (CBZ) and its derivative Oxcarbamazepine (OXC) are Antiepileptic Drugs (AEDs) effective in mainly focal and few generalized epilepsies. However, CBZ/OXC is not only known to exacerbate epileptic seizures in generalized epilepsies but also sometimes even in focal epilepsies and known to have EEG worsening as an adverse effect. Literature review describes several cases of seizure exacerbation and /or EEG worsening due to CBZ/OXC with a high incidence in children. We report 30 new cases of such worsening.

**Methodology:** Out of 262 children, who were put on CBZ/OXC, we retrospectively analyzed 30 patients who developed clinical and/or electrographic worsening after initiation of drug. We noted detailed seizure profile, serial EEG tracings, cognitive functions or behavior before and after CBZ/OXC treatment and after withdrawal of CBZ/OXC. 27 patients had focal epilepsy and 3 had generalized epilepsy who presented initially with focal seizures. Clinically, seizure frequency increased in 14 patients (46.6%) and 12 (40%) had onset of new seizure types like isolated myoclonus in 5, isolated absences in 5 and GTC, atonia with myoclonus in 1, myoclonus with absences in 1 and in rest 4 (13.3%) deteriorating scholastic performance and/or appearance of behavioral issues were the sole indicators of worsening. Electrographically, deterioration was in the form CSWS pattern in 6 patients, 3 Hz SWD in 2 and increase in discharge frequency in rest 22. The cognitive/ psychosocial issues were noted in 25 patients in the form of ADHD/hyperactivity/inattentiveness/aggressiveness. After discontinuation of CBZ/OXC and change of AED, reduction in seizure frequency, disappearance of new seizure types, behavior improvement and improving scholastic performance was noted. EEG abnormalities reduced in 22 cases (73.33%) and disappeared in 8 patients (26.66%).

**Conclusion:** Children on CBZ/OXC must be followed up for clinical and psychosocial parameters. Increase in seizure frequency, appearance of new seizure types or behavioral issues and progressive scholastic deterioration warrants timely EEG to look for possible worsening. However, this also raises concern for use of CBZ/OXC as an initial AED for focal epilepsy in children.

#### Biography

Karan Pahuja is a final year medical (MBBS) student at Government Medical College and Hospital, Nagpur, Maharashtra, India. He is also a research trainee under Dr. Vinit Wankhede at Nelson Child and Mother Care Hospital and Research Institute located in Nagpur. He is interested in evolving as a clinical researcher and improve doctor patient communication skills. Being able to communicate in 5 languages, he has been working hard on his knowledge and abilities to become a fine clinician and scientist.

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