



## Effectiveness and Safety of Brivaracetam in Children

Vykuntaraju K. Gowda<sup>1</sup> · Balamurugan Nagarajan<sup>1</sup> · Sanjay K. Shivappa<sup>2</sup> · Naveen Benakappa<sup>2</sup>

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*To the Editor:* More than 25% children with seizures have refractory epilepsy [1]. Brivaracetam is a United States Food and Drug Administration (USFDA) approved antiepileptic drug (AED) indicated in patients older than 4 y [2]. In this retrospective study, we assessed the effectiveness and safety of Brivaracetam in children with refractory epilepsy below 18 y of age, between September 2018 and August 2019. Out of total 38 patients, 25 were males. Mean age was 5.9 y. Various epilepsy syndromes were West syndrome (6); Lennox–Gastaut syndrome (LGS) (8); Dravet syndrome (2); and tuberous sclerosis (TS) (3). The average dose of Brivaracetam used was 2 mg/kg/body weight.

Decrease in seizure frequency was more than 50% in 14/38 (36%) with 4 (10%) of them seizure-free, no change in 18 (47%), less than 50% in 1, and 2 (5.2%) showed worsening of seizures. More than 50% reduction noted in West syndrome (3), LGS (5), TS (2). Seizure-free in 3 cases of unknown etiology and 1 case of West syndrome. Eleven (55%) of them had more than 50% seizure reduction in Levetiracetam (LEV) switch cases. The adverse effects were drowsiness and mood swings in 1 child each. Two out of the 4 patients reported improvement in behavior in LEV switch cases. The duration of follow-up was 12 mo, and during this period, no change in effectiveness was noted in those who responded.

Brivaracetam has 15- to 30-fold high affinity for synaptic vesicle 2A than LEV. It has high lipid solubility, rapid brain penetration, and broad-spectrum antiepileptic activity [2]. The safety and tolerability profile in children are similar to adults

[2, 3]. We noted greater than 50% seizure reduction in 36%, seizure-free in 10%, unchanged seizure frequency in 47%, increased seizure frequency in 5.2% compared to 44%, 17%, 38%, and 18%, respectively reported in adults [4]. To conclude, Brivaracetam adjunctive treatment is well tolerated, safe, and effective in children.

### Declarations

**Conflict of Interest** None.

### References

1. Strzelczyk A, Griebel C, Lux W, Rosenow F, Reese JP. Burden of severely drug-refractory epilepsy: a comparative longitudinal evaluation of mortality, morbidity, resource use, and cost using German health insurance data. *Front Neurol*. 2017;8:712.
2. UCB, Brussels, Belgium. Briviact US Prescribing information 2018. Available at: <https://www.briviact.com/briviact-PI.pdf>. Accessed 25 January 2020.
3. Liu E, Dilley D, McDonough B, Stockis A, Daniels T. Safety and tolerability of adjunctive brivaracetam in pediatric patients < 16 years with epilepsy: an open-label trial. *Pediatr Drugs*. 2019;21:291–301.
4. Menzler K, Mross PM, Rosenow F, et al. First clinical post marketing experiences in the treatment of epilepsies with Brivaracetam: a retrospective observational multicenter study. *BMJ Open*. 2019;9(11):e030746.

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✉ Vykuntaraju K. Gowda  
drknvraju08@gmail.com

<sup>1</sup> Department of Pediatric Neurology, Indira Gandhi Institute of Child Health, Bengaluru, Karnataka 560029, India

<sup>2</sup> Department of Pediatric Medicine, Indira Gandhi Institute of Child Health, Bengaluru, Karnataka, India