Efficiency of Rufinamide as add-on Treatment of Drug Resistant Generalized and Focal Epilepsies: One center experience

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OBJECTIVES

Drug-resistant epilepsy (DRE) is defined as “failure of adequate trials of two tolerated, appropriately chosen and used antiepileptic drug schedules to achieve sustained seizure freedom”. Rufinamide was approved for treatment of children with Lennox-Gastaut syndrome and also can be efficient as add-on treatment with DRE (1).

METHOD

Data of 35 patients with DRE who received rufinamide as add-on treatment between 2015-2021 were reviewed, retrospectively. Electroencephalographic (EEG) findings and seizure frequency were compared before and after rufinamide.

RESULTS

Overall, ages of children ranged from 5 months to 16 years (mean: 20.7 months). Of these patients, 14 (40%) were female and 21 (60%) were male. According to ILAE, 7 (20%) clinical onset of the patients had focal, 24 (69%) generalized, 4 (11%) undefined type of epilepsy. Sequel changes were seen as perinatal asphxia in 5, neonatal hypoglycemia in 2, infarction / traumatic hemorrhage / herpes encephalitisin one patient each. Genetic causes determinated as SCN1A, Pelizeus-Merzbacher Like Disease, 15Q11-Q13 duplication, WWOX, MTO1, IQSEC2, SLC9A9, Aicardi Goutieres. Spesific MRI findings of central nervous system (CNS) malformations were detected as cerebral/cerebellar atrophy in 6, polymicrogria in 3, schizencephaly in 2, corpus callosum agenesis in 2, lisencephaly / pachygyria / cortical displasia / hypomyelinisation / hamartoma in one patient each (Table 1). The duration of treatment was one to 54 months (mean 13 months). Average dosage of rufinamide was 8-60 mg/kg/day (mean 27 mg/kg/day). Adverse events were rashes, vomiting, breathing difficulty in three patients and caused discontinuation. Clinical and EEG improvements after rufinamide treatment according to focal and generalized types are given at Table 2 and 3. No significant relation found between EEG and decrease in seizure frequency.

Table 1. Demographic, clinical, EEG and imaging characteristics of the patients

Features	N (%)
Gender	
Male	21 (%60)
Female	14 (%40)
Age	5 months-16 years
Clinical Onset (Epilepsy Type)	
Focal	7 (%20)
Generalized	24 (%69)
Undefined	4 (%11)
EEG Findings	
Focal, Multifocal	12 (%34)
Generalized, Generalized/Focal	23 (%66)
Epilepsy Etiology	
CNS Malformation	12 (%34)
Sequel	10 (%28.5)
Genetic	8 (%23)
Idiopathic	5 (%14.5)
MRI Findings	
Malformation	19 (%54)
Sequel	10 (%28.5)
Normal	6 (%17.5)

Table 2. Clinical response to treatment (>%50 effective, %25-50 partial, <%25 ineffective)

Clinical Response	Focal Epilepsy	Generalized Epilepsy	Total
Effective	5 (%42)	7 (%30)	12 (%34)
Partial Effect	3 (%25)	3 (%13)	6 (%17)
Ineffective	4 (%33)	13 (%57)	17 (%49)

Table 3. EEG response to treatment (>%50 effective, %25-50 partial, <%25 ineffective)

EEG Response	Focal Epilepsy	Generalized Epilepsy	Total
Effective	5 (%42)	2 (%9)	7 (%20)
Partial Effect	2 (%16)	3 (%13)	5 (%14)
Ineffective	5 (%42)	18 (%78)	23 (%66)

CONCLUSIONS

We evaluated efficacy and tolerability of rufinamide for children with DRE. Despite no significant relation between EEG activities and seizure frequency, proportional decrease as percentage in focal seizure frequency was found. Rufinamide significantly reduced the overall seizure frequency in approximately 34% of pediatric patients with refractory seizures, Several studies evaluate rufinamide efficacy in children vary from 35% to 66%. Our datas are consistent with data from previous papers(1). Our study showed that rufinamide can be a choice for cases of DRE have both generalized and/or focal activities on EEG as an add-on therapy.

REFERENCES

1. Tanritanir A, Wang X, Loddenkemper T. Efficacy and Tolerability of Rufinamide in Epileptic Children Younger Than 4 Years. J Child Neurol. 2021 Mar;36(4):281-287