The efficacy of Everolimus on TSC associated drug resistant epilepsy

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INTRODUCTION:

Tuberous sclerosis complex (TSC) is an autosomal dominant neurocutaneous disorder. In these patients, disruption of the mammalian target of the rapamycin (m-TOR) pathway can cause many abnormalities in various organs, especially in the central nervous system. Seizures are the most common clinical manifestation in these patients, most of which begin in the first year of life and are usually drug resistant. Uncontrolled seizures interfere with children neurological, cognitive, and social development.

OBJECTIVES:

The objective of this study was to analyses the efficacy of everolimus in patients with TSC- associated drug-resistant epilepsy.

MATERIALS & METHODS:

This pre- and post-treatment clinical trial was performed on 14 children (eight females and six males with a mean age of 10 years) previously diagnosed with TSC based on the diagnostic criteria ,from August 2017 to March 2019. Patients' data included seizure type, age at onset, antiepileptic drugs (AED) used for treatment, the number of seizures before and after everolimus, and neurodevelopmental status were collected. We used everolimus (Afinitor, Novartis), as add on therapy, with mean dosage of 3 mg/m2 (range 4.7 ± 1.4 mg/m2) for patients with refractory epilepsy at least six months. Drug efficacy defined as ≥ 50% reduction in seizure number. The paraclinical tests, including complete blood count (CBC), differential count, and biochemical tests for liver function tests, renal function, and lipid profile were performed at the beginning and monthly.

RESULTS:

In 41.1% of the patients the seizures presented as infantile spasms and in 29.4% with focal seizures. The mean age at seizure onset was 13.7 ± 4.28 months (range 2-72 months), All patients had tried at least 5 antiseizure drugs before introducing everolimus. By adding everolimus 76.4 % of the patients had ≥ 50% seizure reduction. There was no relationship between epilepsy type and response to everolimus. Also 29.4% of the patients had significant behavioral improvement. Only one serious side effect as oral aphthous lesions was noted and the drug stopped.

CONCLUSIONS:

In this study, everolimus significantly lowered seizure frequency in TSC patients and improved significantly behavioral problems. Everolimus can be a therapeutic option for refractory epilepsy in TSC patients.

REFFERENCES:

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