



Effect of Flunarizine on Recurrent Status Epilepticus in a Patient with Alternating Hemiplegia of Childhood

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To the Editor: Alternating hemiplegia of childhood 2 (AHC2), caused by pathogenic variants of *ATP1A3*, is characterized by recurrent episodes of hemiplegia, seizures and tonic-dystonic episodes [1]. Here, we report the use of flunarizine to manage recurrent status epilepticus in an 11-year-old boy patient with AHC2.

He was vaginally delivered at 40 wk of gestation and showed developmental delay from the age of 4 mo. Since then, he has experienced intractable recurrent status epilepticus and left- or right-sided weakness. Brain magnetic resonance imaging (MRI) and electroencephalography (EEG) findings were unremarkable. He experienced focal seizures daily and, on average, developed status epilepticus once a month, requiring repeated hospitalization. When he was 7-year-old, whole exome sequencing revealed a heterozygous de novo pathogenic variant, c.2443G>A (p. Glu815Lys) in the *ATP1A3* gene (NM_152296.5), diagnosed with AHC2. On follow-up, the patient showed diffuse brain atrophy and bilateral hippocampal volume reduction on MRI, and right-side-dominant multifocal sharp-wave discharge on EEG. Based on genetic test results, we initiated flunarizine at 5 mg/d and slowly increased the dose to 20 mg/d. Since its administration, the patient has shown no status epilepticus, and the frequency of focal seizures and acute dystonia have decreased by more than 50%.

Showing varying levels of efficacy in different clinical manifestations and genetic variants of AHC2, flunarizine is frequently used in AHC2 treatment [2, 3]. In AHC2, the dysfunction of the Na⁺/K⁺ ATPase pump results in increased calcium influx via N-type voltage-gated calcium channels.

In addition, pump inactivation leads to increased neuronal calcium levels and causes cell death. Flunarizine, a calcium channel blocker, exerts its therapeutic effects by inhibiting intracellular calcium elevation, is known to be effective for hemiplegic episodes and dystonia in AHC2 [1, 4]. Our case demonstrates that flunarizine can effectively improve recurrent status epilepticus in AHC2, as a targeted treatment for *ATP1A3* mutations.

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Declarations

Conflict of Interest None.

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