Early infantile epileptic encephalopathy (Ohtahara Syndrome): A case report with STXBP1 mutation

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Introduction

Mutations in Munc18-1/STXBP1 (syntaxin-binding protein 1) are linked to various severe early epileptic encephalopathies and neurodevelopmental disorders such as Ohtahara syndrome, West syndrome, Dravet syndrome, non-syndromic epilepsies, atypical Rett syndrome, and severe intellectual disability without epilepsy (1,3). Ohtahara syndrome is a rare epileptic encephalopathy that occurs in the first 3 months of life and presents with recurrent tonic seizures. Burst-suppression pattern is the most important EEG finding. We present a case that was diagnosed with Ohtahara Syndrome at the age of 1 month with the recurrent tonic seizures.

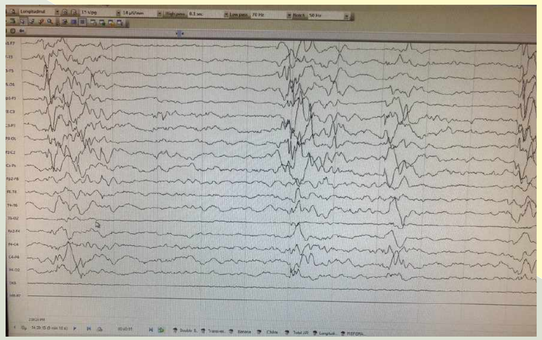
Case Report

A 1 month-old female patient, who was born at term as the 4th live birth from the 4th pregnancy of a 40-year-old mother, without a history of hospitalization in the neonatal intensive care unit, applied to the emergency department with the complaints of contractions in the body and constant gaze in the eyes, which had been going on for 3 days. Firstly phenytoin was loaded then tonic seizures were seen and levetiracetam and phenobarbital theraphy was added respectively. Electroencephalogram revealed burst supression pattern both in sleep and awake period which is found to be significant for Ohtahara syndrome (Figure1). Cranial MR imaging and metabolic tests were normal. In the clinical exome sequencing analysis, a heterozygous mutation in exon 12 of the STXBP1 c.1004C>T(p.Pro335Leu) gene was detected and she was followed up with the diagnosis of Ohtahara Syndrome. In the follow up when she was 6 months old she had infantil spasms with the EEG finding of hypsarrhythmia and vigabatrine and ACTH theraphy added. Under ACTH therapy she had partial seizure control. Now she is 3 years old with seizure control under only levetiracetam theraphy with normal EEG findings. She had developmental delay she can not walk and she has intellectual disability.

Discussion

Heterozygous mutations in the syntaxin-binding protein 1 (*STXBP1*) gene, which encodes a core component of the pre-synaptic membrane-fusion machinery called Munc18-1, has been associated with severe forms of early epileptic encephalopathy in patients with Ohtahara syndrome. *STXBP1*-related epileptic encephalopathy was initially discovered in 2008 in individuals with a severe, neonatal epilepsy termed Ohtahara syndrome (4). Specific protein-protein interaction and gene therapy are promising future treatment options that need to be investigated further. Gene therapy, consisting either of gene suppletion or upregulation of gene expression, carries the promise of becoming an ultimate form of precision medicine (5).

Figure.1 EEG revealed bust suppression pattern.



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