



# Ketogenic diet treatment success in our two patients with epilepsy of infancy with migrating focal seizures

Betül Kılıç<sup>1</sup>, Esra Özpinar<sup>1</sup>, Mehmet Palaz<sup>1</sup>, Yasemin Topçu<sup>1</sup>, Kürşad Aydın<sup>1</sup>

<sup>1</sup>Department of Pediatric Neurology, Istanbul Medipol University Faculty of Medicine, Istanbul, Türkiye



## OBJECTIVES

Epilepsy of infancy with migrating focal seizures (EIMFS) (SLC12A5-associated early infantile epileptic encephalopathy 34) is a well defined, and rare epileptic syndrome, characterized by an onset of multifocal seizures before 6 months of age. Typical ictal EEG pattern, consisting of seizures arise independently, and sequentially from both hemispheres. A multidisciplinary approach to management of seizures, hypotonia, feeding difficulties, respiratory problems, and developmental delay is recommended (1). We present two patients with EIMFS treated with the ketogenic diet.

## CASES

Patient 1 was a 10-month-old boy with EIMFS from 5 months old and patient 2 was 2-year-old boy with EIMFS from 8 days of life. Both of the two patients had hypotonia, and global psychomotor impairment. Seizures characterized as focal clonic type. The EEG showed unilateral slow activity, and multifocal spikes (Fig. 1).MRI was normal in patient 1, cerebral atrophy and retardation in myelination were observed in the other. The patients received phenobarbital, carbamazepine, clobazam, valproic acid, topiramate, phenytoin, sulthiame and levetiracetam in different schemes, with partial response. Two patients who met the diagnostic criteria for EIMFS at our department were placed on the ketogenic diet and followed for a minimum of twelve months. They responded well to the ketogenic diet, became seizure-free, had improved EEG findings (Fig. 2). Neuropsychological performance also significantly improved. For these two patients, hospital admission was not required. Tolerability of the diet was good in both of the patients.

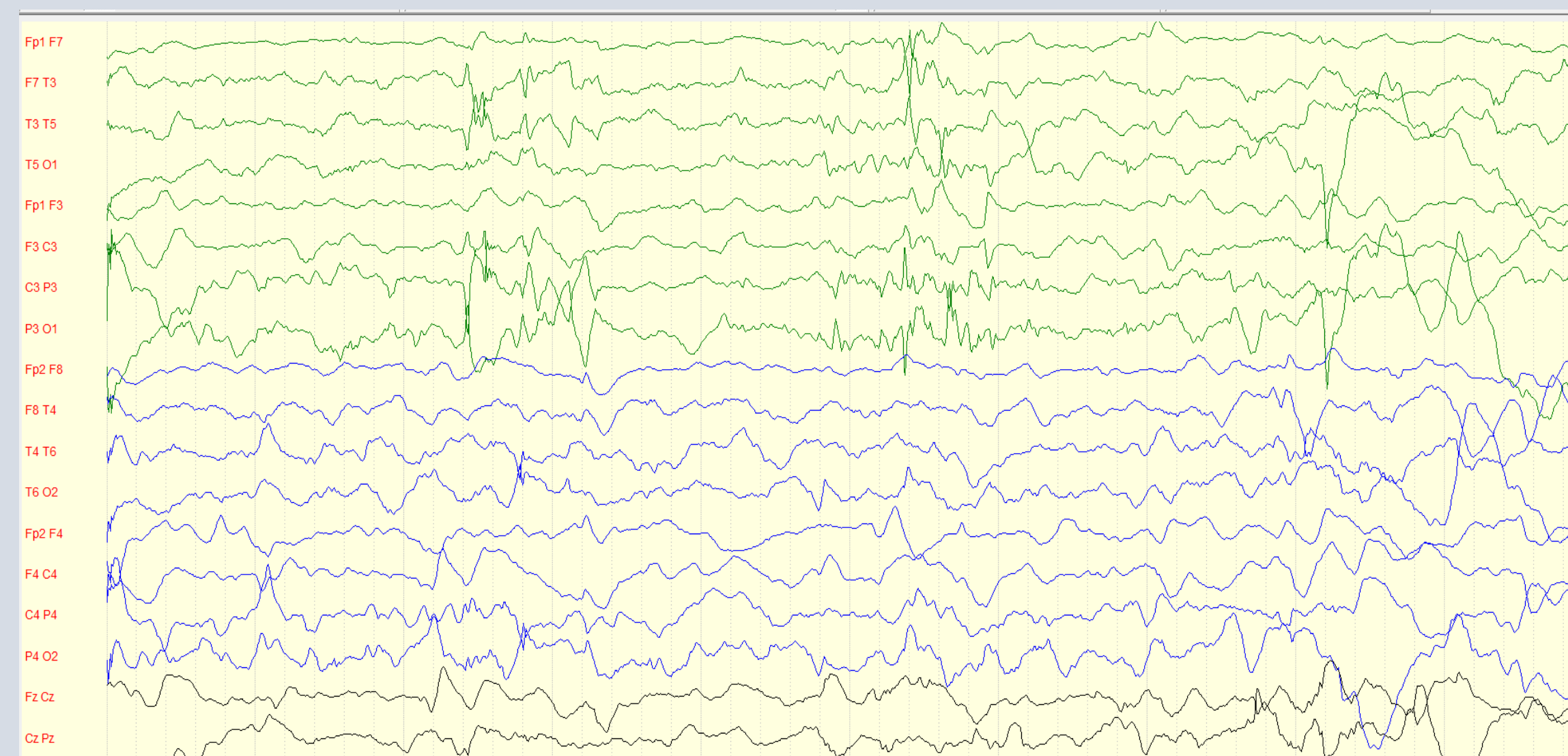


Fig. 1. EEG of patient 2 showed unilateral slow activity, and multifocal spikes

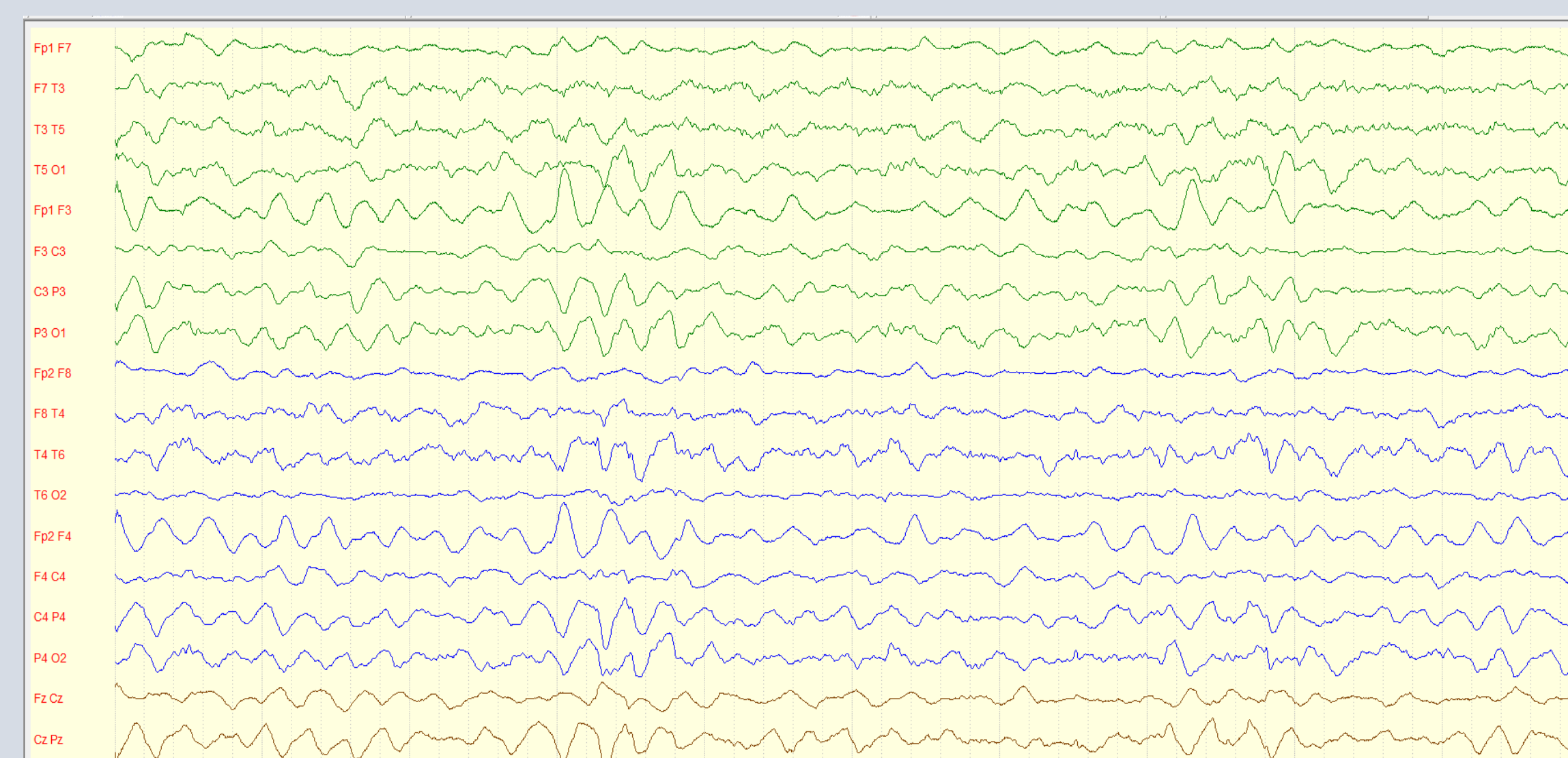


Fig. 2. EEG of patient 2 showed improvent after ketogenic diet

## CONCLUSIONS

There are no specific treatments for seizures in *SLC12A5*-EIMFS. The seizures are refractory to anti-seizure drugs, and cause subsequent severe intellectual disability. Several reports have focused on control or reduction of seizures with the use of different anti-seizure drugs with variable results. The ketogenic diet has been successfully used in children with different types of seizures and epileptic syndromes, especially epileptic encephalopathies. Three patients with EIMFS were treated and responded well with ketogenic diet had been reported (2). Early treatment with the ketogenic diet should be considered for EIMFS to control seizures, and avoid status epilepticus and progressive cognitive impairment.

## REFERENCES

1. McTague A, Kurian MA. SLC12A5-Related Epilepsy of Infancy with Migrating Focal Seizures. 2019 Feb 14. In: Adam MP, Everman DB, Mirzaa GM, et al., editors. GeneReviews®. Seattle (WA): University of Washington, Seattle; 1993-2022.
2. Caraballo R, Noli D, Cachia P. Epilepsy of infancy with migrating focal seizures: three patients treated with the ketogenic diet. *Epileptic Disorders*. 2015;17(2):194-197.