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Case Report

Case Report: Lennox-Gastaut Syndrome in a 6-Year-Old Child

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Abstract

Lennox-Gastaut Syndrome (LGS) is a severe childhood-onset epileptic encephalopathy characterized by multiple seizure types, cognitive impairment, and distinct electroencephalographic (EEG) features. We report the case of a 6-year-old boy with medically intractable epilepsy, abnormal neurodevelopment, and MRI findings consistent with periventricular leukomalacia. Despite multiple antiepileptic drugs, seizures persisted. Prolonged EEG confirmed epileptogenic activity in bilateral posterior regions. The patient was deemed unsuitable for epilepsy surgery. Optimization of valproate dosage and initiation of levetiracetam were recommended.

Keywords: *Lennox-Gastaut Syndrome; Epilepsy; Antiepileptic Drugs; Case Report*

Background

Lennox-Gastaut Syndrome (LGS) is an epileptic encephalopathy that typically presents before the age of 8 years, most commonly between 4 - 5 years. It is classically defined by a triad of:

1. Multiple seizure types.
2. Cognitive or developmental impairment.
3. EEG findings of slow spike-and-wave discharges (SWW), often with paroxysmal fast activity (PFA) during sleep.

While early-onset LGS often leads to severe cognitive impairment, late-onset variants may demonstrate preserved cognition. Despite advances in treatment, LGS remains difficult to manage, and many patients are not suitable candidates for curative surgical intervention.

Case Presentation and Discussion

Patient information

The patient is a 6-year-old right-handed boy with a history of seizure disorder admitted for pre-surgical assessment due to medically intractable epilepsy. He was born via cesarean section complicated by neonatal hyperglycemia. Developmental milestones were delayed.

Clinical findings

The first seizure occurred at age 5 years, presenting as sudden falling with loss of consciousness and tonic posturing, predominantly in the right arm. Habitual seizures involved episodes of staring, falls, and tonic posturing of the limbs. No generalized tonic-clonic seizures were reported. Seizure frequency was multiple episodes per day.

There was no history of head trauma, central nervous system infection, meningitis, or encephalitis. Family history was negative for epilepsy or other neurological disorders.

Social and developmental history

The patient has intellectual disability and requires assistance with daily activities.

Medications:

- Oxcarbazepine 300 mg/day.
- Valproate (Depakine) 1000 mg/day.
- Pregabalin 300 mg/day.

Physical and neurological examination

On examination, the patient was alert and oriented with fluent speech and intact cranial nerves. Motor strength was 5/5 in all extremities, with symmetrical deep tendon reflexes (2+). Fine motor movements were preserved. No cerebellar signs were detected. Cardiovascular and systemic examinations were unremarkable.

Investigations

MRI findings:

- Focal gliosis in the parasagittal bilateral parieto-occipital lobes.
- Associated volume loss and thinning in the posterior corpus callosum with atrophy of the splenium.
- Extension of gliosis into the left temporal lobe border.
- Findings consistent with remote, likely prenatal ischemic injury such as periventricular leukomalacia (PVL).
- Both hippocampi normal.
- No other structural abnormalities detected.

EEG findings:

- Initial background attenuation followed by bilateral fast activity.
- Bilateral slow activity with interictal abnormalities, most prominent posteriorly.
- Prolonged video EEG monitoring demonstrated frequent clinical seizures characterized by staring, right-hand posturing, and unresponsiveness without generalized tonic-clonic activity.

Hospital course

During hospitalization, antiepileptic medications were tapered to facilitate seizure monitoring. Multiple clinical and electrographic seizures were recorded, consistent with Lennox-Gastaut Syndrome. Despite polytherapy, seizures remained frequent and disabling.

Impression

This is a 6-year-old boy with intractable epilepsy and features consistent with Lennox-Gastaut Syndrome. MRI findings indicated structural brain injury, and EEG confirmed bilateral posterior epileptogenic zones. Due to the diffuse bilateral epileptogenic activity, the patient is not a candidate for curative epilepsy surgery.

Conclusions and Recommendations

The patient has Lennox-Gastaut Syndrome with frequent seizures refractory to multiple medications. Surgical treatment is not indicated. We recommend:

- Increasing the dosage of valproate (Depakine).
- Initiating levetiracetam (Keppra) as adjunct therapy.
- Considering future non-surgical treatment options such as ketogenic diet, vagus nerve stimulation, or cannabidiol-based therapies if seizures remain uncontrolled [1-5].

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