

PEDIATRIC EPILEPSY

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Introduction

The field of pediatric epilepsy has changed dramatically in the past 10 years. Advances in imaging, availability of autoimmune testing, next generation sequencing, and augmented tandem mass spectroscopy testing at birth have all markedly altered the way we approach a child with epilepsy in 2017. Our old paradigms and methods of evaluating epilepsy are out of date and a new approach is required. Fortunately, a simple abstraction of findings routinely reported in the interictal EEG may be very useful in classifying epilepsy and in directing investigations.

EEG-Based Organization of the Epilepsies

Table 1

EEG Type	Name	EEG Background	EEG Epileptiform
1	Familial or Autosomal Dominant Epilepsies	Normal	None or Rare
2	Idiopathic Generalized Epilepsies	Normal	Stereotyped Generalized Spike-Waves
3	Self-Limited Epilepsies	Normal	Stereotyped focal/multifocal spikes
4a	Epileptogenic Encephalopathies	Diffuse slowing	Multifocal pleomorphic spikes
4b	Epileptic Encephalopathies	Diffuse slowing + Discontinuity	Multifocal pleomorphic spikes
5	Focal Structural Epilepsies	Focal Slowing	Pleomorphic Focal Spikes

Implications for Prognosis

Generally, the prognosis of children with epilepsies in the first three categories will be favorable. Children with encephalopathy (category 4) and children with focal structural lesions (category 5), on the other hand will likely have higher rates of intractability and should have specialized investigations early on in the course of their illness.

Evaluation

Type of Epilepsy	MRI Useful ?	Genetic Testing Useful
1 Familial	Not usually	Yes, if clinically required
2 Idiopathic Generalized	No	No
3 Self-Limited	No	No
4a Epileptogenic Encephalopathy	Yes	Yes
4b Epileptic Encephalopathy	Yes	Yes
5 Focal Structural	Yes, Very	No