



## TITLE: Determinants of 2-year remission after treatment initiation in newly diagnosed children with epilepsy: a prospective study

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### ABSTRACT

**Objective:** Despite optimal medical therapy, 20% to 35% of children with epilepsy continue to have seizures. The purpose of this study was to identify early predictive factors of treatment outcome in newly diagnosed children with epilepsy.

**Methods:** A prospective cohort of 677 children with newly diagnosed epilepsy (aged 1 month to 17 years) was assembled and is actively being followed at the American University of Beirut Medical Center. The workup included a detailed history, 3-hour sleep deprived EEG, and an epilepsy protocol brain MRI. A 2-year remission (2YR) was defined as achieving at least two years of complete seizure freedom while on treatment. Multivariable analysis was performed with the Cox proportional hazards model. P-values <0.05 were considered significant.

**Results:** The follow up period ranged from 2 to 11 years with a mean of 7.2 years. Mean age at epilepsy onset was 7 ± 4.9 years. 524 (77.4%) children had interictal epileptiform discharges (IEDs) on EEG, an epileptogenic lesion was identified on the brain MRI of 182 (26.9%), and 178 (26.3%) had developmental delay. 548 (80.9%) achieved 2YR at some point during the follow up period. Percentage achieving 2YR was highest in the idiopathic focal epilepsy group (99.1%) and lowest in the symptomatic generalized epilepsy group (46.1%). The factors associated with a low probability of remission were greater number of pretreatment seizures (11-100 vs. 1, HR 0.52; ≥100 vs. 1, HR 0.71), having ≥3 types of seizures (HR 0.48), presence of an epileptogenic lesion on MRI (HR 0.59), and presence of developmental delay (moderate delay HR 0.66, severe delay HR 0.34).

**Conclusions:** A substantial percentage of children achieved a 2YR period on treatment. We highlighted the variables associated with a poor outcome allowing physicians to estimate the probability of achieving seizure remission and to take appropriate interventions early after diagnosis.

### BIOGRAPHY

Dana Ayoub completed her Doctor in Pharmacy Practice degree at the Lebanese University, Lebanon. She is a PhD candidate in public health and epidemiology at Institut d'Epidémiologie et de Neurologie Tropicale, OmegaHealth, University of Limoges, France. Her main research interests are in the field of pediatric epilepsy.

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