

# **EVALUATION OF LONG TERM COGNITIVE RISKS ASSOCIATED WITH THE PRESENCE OF SEIZURE DURING ACUTE DISSEMINATED ENCEPHALOMYELITIS**

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A small percentage of paediatric acute disseminated encephalomyelitis (ADEM) presents with seizures, the expression of neuronal involvement. The association of epileptic activity with demyelination could represent an increased risk for long lasting cognitive sequelae, this has not yet been well-explored in the literature. Objective of this study was to compare long term neuropsychological outcomes between children and adolescents with history of ADEM with or without seizures.

A neuropsychological evaluation (explored areas: general intelligence, language, attention, memory, visuo-motor skills and executive functions) was administered to 20 children and adolescents with history of ADEM (12 boys; mean age at ADEM onset 6.5 years (DS 4.23), mean age at follow-up 13.8 years (DS 5.65) and mean length of follow-up 6.8 years (DS 3.7). Multichannel-EEG recordings during hospitalization for ADEM were evaluated by a neurophysiologist trained in the identification of epileptic activity. 4/20 patients had EEG confirmed seizures. Neuropsychological scores of patients with and without seizures were compared using Mann-Whitney test. No significant differences were found between children with and without seizures, in none of the cognitive domains explored. In conclusion, the presence of seizures during ADEM do not appear to represent a risk factor for developing long term cognitive impairment.

## **KEY POINTS:**

- Seizures associated to demyelination could represent an increased risk for cognitive impairment, because indicate neuronal cortical involvement.
- No studies in the literature investigated the neuropsychological impairment associated to seizures during paediatric ADEM.
- Paediatric ADEM generally had a good prognosis, but sometimes mild cognitive sequelae.
- The presence of seizure do not appear to increase the risk of cognitive impairment.