Epilepsy following auto-immune encephalitis; a retrospective cohort study.

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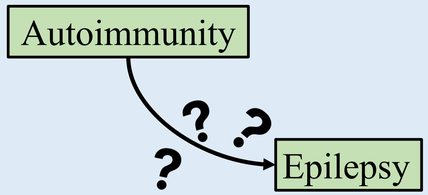
Introduction

Acute encephalitis is a debilitating neurological disorder that develops as a rapidly progressive encephalopathy (usually in less than 6 weeks) caused by brain inflammation. Autoantibodies which are directed against neuronal cell surface proteins, receptors or ion channels or against intracellular antigens play an important pathogenic role.

Seizures are a dominant clinical feature occurring in up to 80-100% children with AE. Status epilepticus or non-convulsive status epilepticus is frequently reported.

Those who suffer autoimmune encephalitis (AE) may experience unprovoked seizures later in life. Whether this is related to ongoing inflammation or secondary to injury sustained during AE is unclear. Risk factors for development of epilepsy is not well established.



Objectives

- Describe the frequency of epilepsy following Autoimmune Encephalitis in children.
- Describe risk factors for development of epilepsy following Autoimmune Encephalitis.

Method

Participants

Children who suffered possible/ probable or definite AE were retrospectively evaluated for development of epilepsy. Epilepsy details and outcome was recorded and risk factors for development of epilepsy were studied.

Study Settings

- Neurology units, Lady Ridgeway Hospital for Children, Colombo, Sri Lanka
- Neurology Unit, Teaching Hospital, Karapitiya, Sri Lanka

All patients were recruited from three paediatric neurology clinics in the two hospitals. They were children who suffered possible, probable or definite AE based on the criteria described by Graus et al 2016. They were all followed up by a paediatric neurologist for a minimum of one year at the time of recruitment.

Details about the episode of AE was gathered from parental interview, previous medical records, Review of EEG. Imaging and assessment of response to therapy were gathered from the clinic records.

The identified children with epilepsy (Fisher et al 2014) were reviewed by the PI to gather information on their epilepsies.

Results

Participants

There were 46 children with a diagnosis of AE who were treated as such and later followed up in the respective settings.

Demographic and clinical characteristics	
Gender	Male – 52% Female – 48%
Age at onset of AE Mean Standard deviation Range	 8 years 5 months 3 years 8 months 17 months to 13 years
Number fullfilled criteria for AE Possible Probable Definite	46 14 (30.43%) 21 (45.65%) 11 (23.91%)
Ethinicity Sinhala Tamil Muslim	 39 (84.78%) 4 (8.70%) 3 (6.52%)
Number of days of illness before admission	Range from 1 day to 69 days
Clinical presentation Neurological Psychiatric Mixed	 28 (0.64%) 5 (0.11%) 11 (0.25%)
Occurance of seizures Status epilepticus	39 (88.64%) 16 (43.24%)
Illness severity Duration of hospital stay Need for ICU care Need for second line Tx Disease severity scale Standard Severe	 Mean 35.97 days 17 (48.57%) 23 (52.27%) 15 (37.5%) 25 (62.5%)

Results

Epilepsy was a long-term complication in 38.46 % of children. A clear time gap (Median of 10.66 months) between AE and epilepsy onset occurred except in two who continued to have seizures without an interval from initial presentation. Majority had a reasonable control of their epilepsy (ILAE epilepsy outcome classification scale 3). Four children were completely free of seizures and without auras.

Risk factor	Significance
AE disease severity	P=0.3
Occurance of seizures at presentation	P=0.35
MRI abnormalities at presentation	P=0.88

Conclusion

Epilepsy follows AE in about 40% of children. Majority enjoyed a reasonable control. AE disease severity, occurrence of seizures or MRI abnormalities at presentation were not associated with an increased risk of development of epilepsy.

Referrenes

Graus F et al. 2016 A clinical approach to diagnosis of autoimmune encephalitis. Neurology 2016: Volume 15

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