Electro-clinical spectrum of children having epilepsy secondary to perinatal asphyxia as per ILAE 2022 diagnostic system in children 1month to 18 years of age

Dr Praveen Kumar Barala, Dr Suvasini Sharma, Dr Harish K Pemde, Dr Sayoni Roy chowdhury
Department of Pediatrics, Kalawati Saran Children's Hospital and Lady Hardinge Medical College

Introduction

- India contributes to 1/5th of global live births, and about 2.8% and 5.6% of all live births develop moderate and severe asphyxia respectively. which lead to long term neurological sequelae including developmental delay, epilepsy and cerebral palsy.
- Perinatal asphyxia despite being most important aetiology of childhood epilepsy, there is still lack of information on various aspects of epilepsy in children having history of perinatal asphyxia such as various EEG patterns, types of seizures (according to ILAE 2017) and their response to ASM and associated co-morbidities.

Aims & objectives

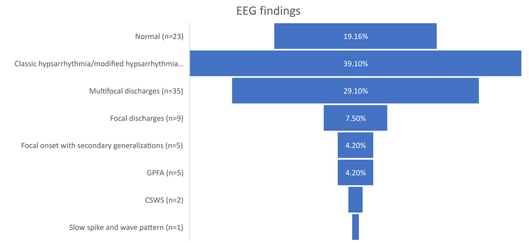
- **Aim :** To study the various electro-clinical spectrum in children having epilepsy with history of perinatal asphyxia.
- **Primary Objective**: To document the various electro-clinical spectrum in children having epilepsy with history of perinatal asphyxia.
- **Secondary Objective** : To document Neurodevelopmental co-morbidities in children having epilepsy with history of perinatal asphyxia.
- To document treatment patterns and refractoriness of seizures in children having epilepsy with history of perinatal asphyxia.

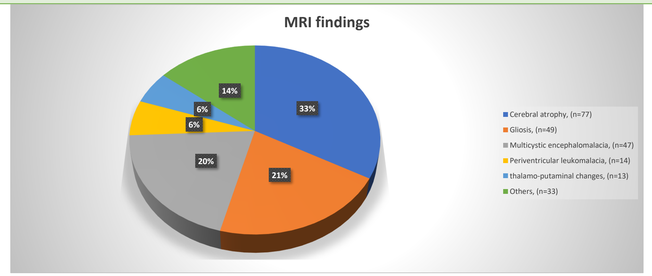
Material & Method

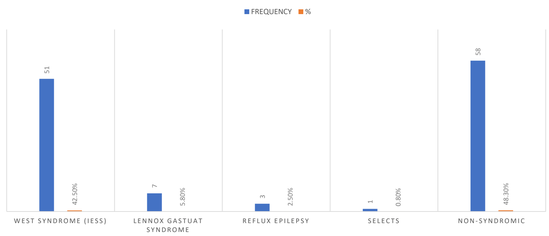
Study design: Cross-sectional observational study
Study period: Nov 2022 to feb 2024
Study population: children up to 18 years of age diagnosed with epilepsy with history of perinatal asphyxia
Sample size: 140 children were screened for the study , after exclusion 120 children were enrolled.

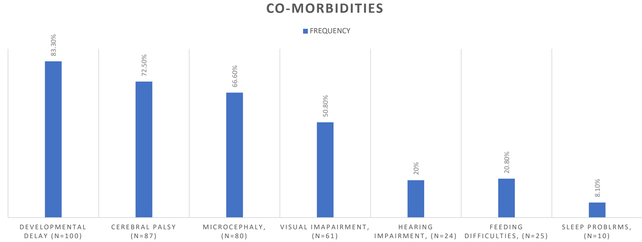
Results

Gender	84 Male (70%) / 36 Female (30%)
Age at onset of seizures (mean age-15 months	Minimum -1 month/ maximum- 96 months
Types of seizures	Focal onset- 30% / Generalized onset -74.16%
EEG findings (Normal- 23 patients 19.16%)	Classic/modified hypsarrhythmia (39.1%)> multifocal discharges (29.1%)
MRI findings	Cerebral atrophy (64.2%)>Gliosis (40.8%)>multicystic encephalomalacia (39.2%)>PVL (11.7%)> Thalamo-putaminal changes (10.8%)
Epilepsy syndromes as per ILAE 2022	Non-syndrome epilepsies (48.3%)>Infantile epileptic spasm syndrome (42.5%)>Lennox-Gastaut syndrome (5.8%)
Anti-seizure medications	Drug resistant epilepsy (44.2%)/ drug sensitive epilepsy- 55.8%)
Co-morbidities	Developmental delay(83.3%)>Cerebral palsy (72.5%)> Microcephaly (66.6%)>Visual impairments(50.8%)> feeding difficulties (20.8%)>Hearing impairment (20%)









Conclusions

- Infantile epileptic spasm syndrome was the most common epilepsy syndrome noted in this age group. Neurodevelopmental co-morbidities such as global developmental delay and cerebral palsy were common, indicating the need for screening and multidisciplinary care.
- Generalised onset seizure, Cerebral palsy, Microcephaly, patients with low IQ and behavioural issues (as per the opinion of parents), MRI findings of Atrophy , Multicystic encephalomalacia and Thalamo-putaminal changes, Multifocal epileptiform discharges on EEG and finally the syndromic epilepsies were found to have significant association with drug resistant epilepsy (P value <0.05).

References

Zuberi SM, Wirrell E, Yozawitz E, Wilmshurst JM, Specchio N, Riney K et al. ILAE classification and definition of epilepsy syndromes with onset in neonates and infants: Position statement by the ILAE Task Force on Nosology and Definitions. Epilepsia. 2022;63:1349-97.