A CROSS SECTIONAL STUDY FOR ABNORMAL ELECTROENCEPHALOGRAM (EEG) DISCHARGES IN SEIZURE FREE CHILDREN WITH DELAYED SPEECH

Abdel Fattah Aly El Qursh, Amr Mohamed El Fatatry, Ashraf Mohamed Ahmed Okda
Department of Neuropsychiatry, Faculty of Medicine, University of Alexandria

INTRODUCTION

Epilepsy, a chronic condition of recurrent seizures, affects language, but the extent and nature of the language disturbance varies widely according to the type, severity, and cause of the epilepsy. There is paucity of literature on the electroencephalographic abnormalities in children with speech and language impairment. The present study was therefore planned to find the association of epileptiform EEG abnormalities in children with speech and language impairment and if present, their localization and lateralization to the language areas of the brain that are present predominantly in the left hemisphere.

AIM OF THE WORK

The aim of this study was to assess prevalence of EEG abnormalities in children with delayed speech and not experiencing seizures from age 3 to 8 years old.

SUBJECTS AND METHODS

The study was conducted on Paediatric patients having speech and language impairment (n=50, age-3 to 8 years) selected on the basis of detailed history and neurologic examination. Electroencephalography (EEG) was performed as per American Clinical Neurophysiology Society guidelines using 21 channel RMS computerized EEG machine for a minimum of 40 minutes to capture both wakefulness and sleep along with activation procedures like hyperventilation (if feasible) and photic stimulation. EEG was
reviewed for any abnormal EEG background, benign variants, interictal epileptiform discharges and ictal discharges.

RESULTS

In our study, EEG was abnormal in 80% children (40 out of 50) with no significant gender difference. Epileptiform EEG was seen in 80% of children with no history of seizures.
The EEG abnormities included: abnormal background (72.5%), presence of generalized interictal epileptiform discharges (62.5%), focal epileptiform discharges (30%) mainly seen from left hemisphere and multifocal interictal epileptiform discharges (42.5%), each occurring in isolation or associated with other abnormities.

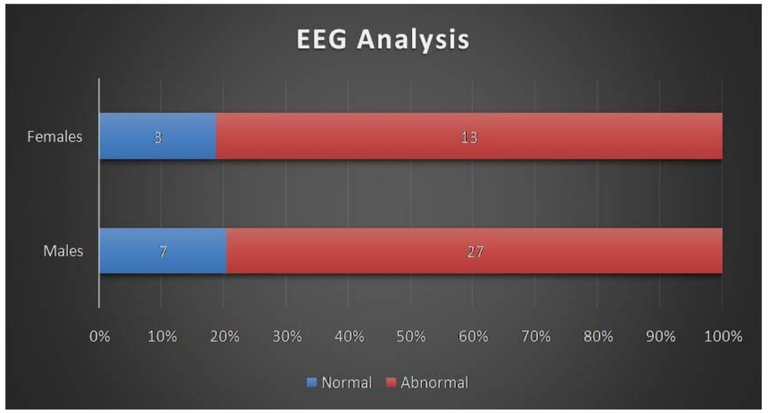

Figure 1: EEG Analysis

72.5 percent (n=29) of the children with abnormal EEGs had an abnormal background, 62.5 percent (n=25) had generalised interictal epileptiform discharges, 30 percent (n=12) had focal epileptiform discharges, and Multifocal interictal epileptiform discharges were found in 42.5 percent (n=17) of the patients, these abnormalities occurred both in isolation and in combination with other abnormalities as showing in table (1).

Table (1): Types and localization of abnormal EEG results identified

Abnormalities	Present	Absent	Total
Abnormal background	29 (72.5%)	11	40
Generalized interictal discharges	25 (62.5%)	15	40
Focal interictal discharges	12 (30%)	28	40
Multifocal interictal discharges	17 (42.5%)	23	40

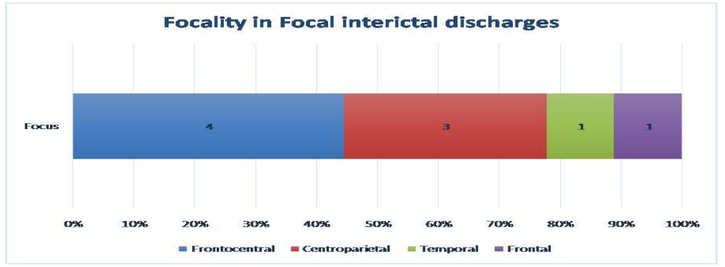

Figure 3: Focality in Focal interictal discharges

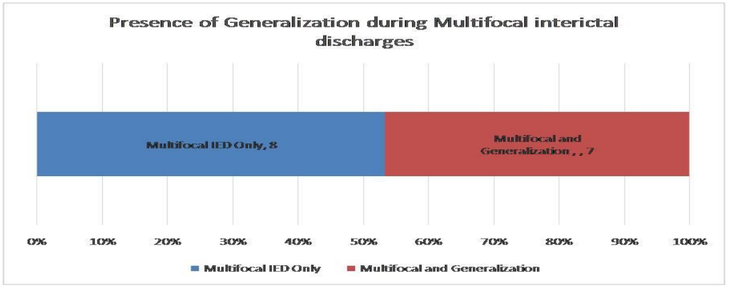

Figure 4: EEG of 17 children (42.5%) showed multifocal inter- ictal epileptiform discharges along with associated generalized discharges in 7 (41.1%) patients.

CONCLUSION

In the current study, it is definite that presence of generalized abnormalities in EEG are seen in higher frequency and focal interictal epileptiform discharges are mainly seen in left hemisphere in children with speech and language impairment. Although, there is no distinct pattern of EEG abnormalities in such patients, we recommend a routine EEG for them as incidence of higher EEG abnormalities is present in them for further prospective studies and how treatments will affect EG.