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Paediatrics

STUDY OF NEURODEVELOPMENTAL OUTCOME IN PAEDIATRIC EPILEPSY

Dr Nidhi Gupta — Assistant Professor, Department Of Paediatrics, CMCH , Bhopal, MP

Dr Arvind kumar mittal* — Assistant Professor, Department Of Medicine, Gandhi Medical College And Hamidia hospital, Bhopal, M.P. *Corresponding Author

ABSTRACT

INTRODUCTION: Epilepsy is a global health issue and an important health problem in developing countries. For a patient with epilepsy and his or her family, unpredictability of seizure recurrence is a constant threat. Epilepsy can lead to permanent brain damage. The risk of premature death in people with epilepsy is two to three times higher than it is for the general population.

AIM/OBJECTIVE:- To study neurodevelopmental outcome in paediatric epilepsy.

MATERIAL & METHOD:- All children between age of 1 month to 18 years with two or more unprovoked seizures attending the paediatrics emergency and OPD of SAMC & PGI in 1½ year duration were enrolled in the study. Detailed history and clinical examination was done for all the patients included in the study.

RESULT:- In our study, developmental delay was observed in 52 patients (36.11%). Out of these patients 96.15% had global developmental delay and 3.84% had delay in specific domains of development.

CONCLUSION:- The study shows that neurodevelopmental delay is found in significant number of children with epilepsy.

KEYWORDS : Epilepsy, brain damage, neurodevelopmental delay

INTRODUCTION

In developing countries epilepsy is a major and important health problem. In 1985/1989 epileptic syndrome was defined as an epileptic disorder characterized by a cluster of signs and symptoms customarily occurring together by the international classification of epileptic seizures and epileptic syndromes.[1] Epilepsy is usually episodic and chronic in nature. The seizures produce brief periods of disruption, which include phenomena such as loss of consciousness, bodily distortion, injuries, unusual and often frightening psychological experiences as well as urinary and bowel incontinence. Apart from the episodic seizures, there are many other ever-present factors – social, psychological, behavioral, educational, cultural and so forth which affect the lives of children with epilepsy, their families and their close social networks. These factors vary considerably from one person to the next, but have a significant impact on the daily quality of life in every affected individual (Ronen et al., 2003).[2] In developed countries, annual new cases are between 40 to 70 per 100000 people in the general population. In developing countries, this figure is often close to twice as high due to the higher risk of experiencing conditions that can lead to permanent brain damage. The risk of premature death in people with epilepsy is two to three times higher than it is for the general population.[3] Childhood-onset epilepsy is associated with psychiatric and cognitive difficulties and with poor social outcome in adulthood.[4]

Aim & Objective

To study neurodevelopmental outcome in paediatric epilepsy

MATERIAL & METHOD

The study was a prospective observation study approved by the ethical committee of Sri Aurobindo medical college and Post graduate Institute, Indore (M.P.), and an informed written consent was obtained from parents of each patient. The present study was conducted in the Department of paediatrics. It was a 1 ½ year duration study in which 144 patients were taken for study and were selected from paediatrics OPD and emergency. Detailed history with Complete neurological examination was carried out in all the patients.

Inclusion criteria:

Any child between age of 1 month-18 year with two or more unprovoked seizures and has undergone neuroimaging i.e. CT/MRI Brain.

Exclusion criteria:

Children with
1. Febrile seizures.
2. Acute symptomatic seizures.
3. Progressive neurological disorders.
4. Who could not undergo neuroimaging.

RESULT

A total of 144 cases aged between one month to eighteen years of both genders visiting OPD and emergency of paediatrics department were taken. The **table-1** shows the age and sex distribution of the patients. Almost equal age distribution was there in the different age groups. In our study 54.16% of children were male and 45.83% were female.

Table No. 1 Age / sex distribution of patients studied

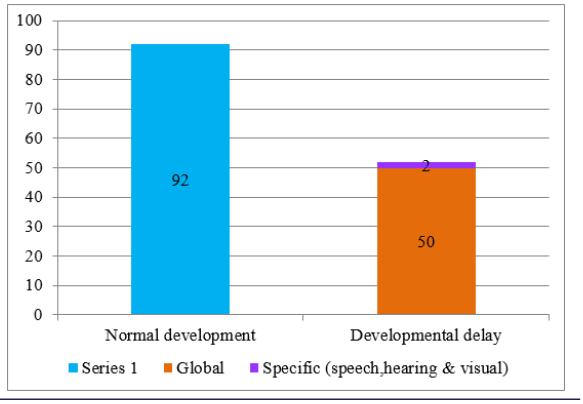
Age Group	Male	Female	Total No. of Patients
	No.	No.	
1 months – 3 years	28	8	36(25%)
4 years – 6 years	12	22	34(23.61%)
7 years – 9 years	18	14	32(22.22%)
10 years – 12 years	14	8	22(15.27%)
13 years -18 years	6	14	20(13.88%)
Total	78(54.16%)	66(45.83%)	144(100%)

In the study population of 144, Developmental delay was observed in 52 patients (36.11%). Out of these patients 50 patients (96.15%) had global developmental delay and 2 patients (3.84%) had delay in specific domains of development.**(Table-2 & Figure 1)**

Table No. 2 Developmental Status

	Total No. of Patients	Percentage
Normal Development	92	63.88
Developmental Delay • Global • Specific (speech, hearing & visual)	52 50(96.15) 2 (3.84)	36.11
Total	144	100

Figure 1



DISCUSSION

This study was conducted in Department of paediatrics, SAIMS & PG Institute, Indore, (M.P.). A total of 144 subjects were included in the study.

In our study we found that the majority of patients of epilepsy had neurodevelopmental abnormality. We found that out of 144 patients, 52 patients (36.11%) had Neurodevelopmental abnormality. And out of them 50 patients (96.15%) had global developmental delay and 2 patients (3.84%) had delay in specific domains of development (speech, hearing & visual). Berg A T et al in 2011 also found that neurodevelopmental abnormalities were common in complicated seizures.[4] Paola Scarpa and Bruno Carassini[5] in a study on 261 patients also found 113 (43.29%) patients having developmental, physical and mental delay. Their results are almost consistent as ours.

CONCLUSION

The purpose of this study was evaluation of developmental delay in children with epilepsy. Neurodevelopmental disorders were not associated with type of epilepsy. Various comorbid conditions in epilepsy all-together are associated with imperfect seizure control and neurodevelopmental delay. These need to be considered together in evaluating and managing young people with epilepsy and may help to explain long-term social outcomes above and beyond poor seizure control.

From the above findings we conclude that significant number of patients with epilepsy had neurodevelopmental abnormality. Patients with Neurodevelopmental abnormality along with seizures usually have intractable seizures and poor outcome of epilepsy. And they have strong correlation with intelligence of children. Epileptic syndromes such as Lennox-Gestaut syndrome are often refractory to treatment. There may be long-term effects of these beyond the impact of seizures themselves.

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