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CLINICAL PROFILE OF EPILEPSY IN A NEWLY ESTABLISHED PEDIATRIC SEIZURE CLINIC IN NORTH INDIA

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ABSTRACT

Research Question: To know the clinical profile, outcome and response to treatment of the epileptic children attending the newly established seizure clinic.

Setting: A tertiary care teaching hospital of North India.

Study Design: Prospective, observational.

Participants: Children coming to seizure clinic.

Results: A total of 332 children were enrolled in the seizure clinic over the study period. The age ranged from 2 months to 18 years (mean 5.74 years). Male to female ratio was 2.8:1. Other factors included positive family history (20.8%), abnormal birth history (22.6%) head injury (7.16%). 42.7% had developmental delay. 41.5% had localization related epilepsy, 54.3% generalized epilepsy and undetermined in 2.2%. EEG was abnormal in 74.7% cases. CT scan abnormality was detected in 60%, commonest was NCC in 43 cases followed by ICH and cerebral atrophy. On follow-up in 68.97% cases seizures were controlled, decreased in 9.63% and intractable in 6.92%.

Key words: ***epilepsy, children, etiology, prognosis of epilepsy, seizure clinic***

INTRODUCTION: Epilepsy is the commonest serious chronic neurological condition in childhood, with a prevalence of approximately 1 in 200 children. Accurate diagnosis and subsequent classification of the epilepsy in an individual child is often complex, and misdiagnosis common[1]. It is important to provide the patient and family information tailored to their specific situation. Such specialist epilepsy clinics have often been advocated as one potential component of improved care for patients with epilepsy[2,3] .

Thus a separate weekly seizure clinic was established in a tertiary care teaching hospital.

MATERIAL AND METHODS: This was a prospective study. All the pediatric patients, with seizure disorder were followed in the special weekly clinic. A separate pediatric consultant with special interest in neurology along with a senior resident and a nurse followed all the cases. Patients were divided into 3 groups according to their age: infants (2-12 months), children (1-12 years) and adolescents (>12 years).These patients were evaluated by a detailed history. On the basis of the clinical profile, EEG and neuroimaging, the patients were categorized under various epileptic syndromes as per the International League against Epilepsy (ILAE) classification[4].The significance of difference between categories of main variables was calculated by using chi-square tests and p value <0.05 was considered as being significant.

RESULTS: A total of 332 children were enrolled in the seizure clinic over the study period of 3 years. The age ranged from 2 months to 18 years with a mean age of 5.74 years. Male to female ratio was 2.8:1(table 1).

Epilepsy with onset during neonatal period was seen in 32 patients (9.5%), in infancy 91(27.1%), in childhood 192 (54.3%), and in juvenile 18 (5.4%) patients

139 (41.5%) patients had partial seizures and 182(54.3%) had generalized seizures. In partial seizures, complex partial seizures were more common (88.5%), and in generalized, tonic clonic was the commonest (59.9%), absence least in 4(2.2%) cases. As per international league against epilepsy classification of epilepsy, 41.5% had localization related epilepsy and 54.3% generalized epilepsy, 2.2% undetermined. Out of 42 cases of NCC, 25 presented with generalized epilepsy. Duration of seizures in all the patients was also recorded. Mean duration was 15 minutes, majority had duration<15 min (232 patients). Family history of epilepsy was found in 69(20.8%) cases.There was a history of head injury in the past in 24 cases (7.16%).Overall 142 cases (42.7%) had developmental delay and rest had normal development. .

EEG was done in 251 cases and abnormality was found in 74.7% cases, commonest being focal discharges in 40 cases, generalized in 31 cases and evidence of structural lesion in 31 cases.

CT scan was done in 63.8% cases, and abnormality was detected in 60% cases (85 normal out of 212). Commonest abnormality was NCC in 42 cases followed by ICH, cerebral atrophy, encephalomalacia, gliosis etc. MRI was done in 60 cases and abnormal in 58.3% cases. Both CT scan followed by MRI was done in 24 cases.

On follow-up 229(68.97%) cases had control of seizures, seizures decreased in 32(9.63%) cases, were intractable in 23 (6.92%), occasional in 16 (4.81%), same in 2(0.6%). Various factors were studied in intractable seizures to know the risk factors. Factors which were significantly related to intractable seizures were age of onset of seizures <1 year or more than 1 year (p<0.00004), duration of seizures whether more than or less than 15 minutes (p<0.05), developmental delay (p <0.001). Presence of abnormal findings on CT or MRI was not related to seizure control, in fact patients with abnormal neuroimaging had better control though not significant (P=0.06).

209 patients were put on single drug therapy with carbamazepine being the commonest (123) followed by Valproate (50), dilatin (16), clobazam(11).36 patients needed 2 drugs, 8 patients needed 3 drugs. Drugs were successfully tapered off in 30 cases and stopped in 10 cases.

Table 1: Age and sex wise distribution of patients with epilepsy

Age group	Male n (%)	Female n (%)	Total n (%)
<1year	56	10	66 (19.8%)
1-12years	149	68	217 (65.4%)
>12years	39	10	49 (14.8%)
Total	244	88	332

M:F ratio= 2.8:1

Discussion: This study was done on a total of 332 children who presented over a period of 3 years in a newly established seizure clinic.

The mean age at presentation to the seizure clinic in this study was 5.74 years, with a male: female ratio of 2.8:1. Mean age was from 3-4.5 years in other studies and also males were more affected than females with ratios ranging from 1.4:1 to 0.84:1 with similar age groups[5-13]. Most studies of sex distribution among children with epilepsy have shown a preponderance of boys which was also found in this study[14].

Varied results have been reported with regard to distribution of age of seizure onset in childhood epilepsy, though highest rate has been seen in infancy[5,8,9,10,15]. In a study by Endziniene et al the highest rate of epilepsy was in the age group 10-14 years. In our study the age of onset of seizures was most commonly in childhood (54.3%) followed by infancy (27.1%) and least in juvenile age group(5.4%)[7].

As per ILAE Classification, in our study generalized Epilepsy was seen in 54.3% of the cases, localization related epilepsy in 41.5% cases (52.3% idiopathic,43.3% symptomatic) and undetermined in 2.2% of the cases and rest 2% were unclassifiable. Studies of main seizure type in children with epilepsy have reported a prevalence of generalized seizure less than partial seizures[7,13,15,16,17] equal to[6,9] or as in the present study higher than partial seizures[5,8,12,18].

In our study there were 43(13%) cases of neurocysticercosis. It has been reported previously also that NCC is one of the main causes of epilepsy in children in developing countries[18,19,20]. In a study by Grill et al from Madagascar, 17.6% of the total epileptic patients had neurocysticercosis[21].On the other hand Medina et al from Mexico in their study of 100 consecutive epileptic patients found neurocysticercosis in 50 patients (50%)[20].

In the present study in the patients with NCC, 29 were boys and 14 girls which is contrary to what is presented in other studies where it has been found to be affecting both sexes with a slight predominance in girls [22,23].

In our study abnormal birth history was present in about 22.6% of the cases. Various studies have found the adverse perinatal factors present in cases ranging from 9-46.4%[5,7,8,9,18,24,25].

In the present study trauma head was the underlying cause in 7.16% of the cases. In other studies trauma head was the underlying cause in just 1%-2.6% cases[7,9,25].

Other factors related to epilepsy like prematurity, presence of family history of epilepsy, febrile seizures before onset of epilepsy were found to be almost the same as reported in previous studies[10,15,16,24,26,27,28,29,30] .

In this study 42.7% children had developmental delay and 12.3% had neurological deficit. In the study of 263 epileptic children, Al-Sulaiman et al found developmental delay in 4.6% cases[5]. In study from Sweden, Sidenvall et al found neurodeficit in 42% of 155 children studied[15].

In our study EEG was done in 251 of the cases and abnormality found in 74.7% cases. In their study of 466 children, Arts et al found EEG abnormality in 59% cases, normal in 24% cases[27]. In another study by Selina et al abnormal EEG was seen in 80.8% of the cases[8]. In our study CT was done in 212 cases and abnormality was found in 59.4% cases and in other studies abnormal CT scan was found in 20-51.5% of the cases[5,31,32,33] Regarding the control of seizures with antiepileptic drugs, in the present study seizures were controlled with single antiepileptic in 209\332 cases (62.95%), with two antiepileptics in 36\332 (10.84%) and with three or more antiepileptics in 8\332 (2.4%) cases. In other studies monotherapy achieved control in 46-77% cases and polytherapy with additional control in another 1/4th of the cases[11,27,28,34,35] .

In the present study intractable seizures were seen in 6.92% cases, which have been found to be 7-10% in other studies[27'32].

Conclusions:Majority of the patients had seizures for a long time before reporting to seizure clinic and suggest that most children presenting at tertiary hospitals for epilepsy come late with associated neurodevelopmental morbidities. It may be recommended that special seizure clinics may be established in teaching hospitals to have good follow up of the patients.

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