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Original Research Article

Review of seizure disorders in children in the age group of six months to five years

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ABSTRACT

Background: Seizure disorder a term used to include epilepsy, febrile seizures and other types. The international classification and Diagnostic tools including EEG monitoring and MRI are helpful to categorize seizure and treat them with various antiepileptic medications.
Methods: Data from patients in the age group of 6 months to 5 years, over 2 months period, presenting with seizure disorders was collected in prescribed proforma and evaluated for type of seizure disorder, age of onset, family history of seizures, previous history of febrile convulsions, presence of neurological abnormality, EEG changes and response to drugs. They were followed up over a period of 2 years.
Results: In this study 200 children's with seizure disorders from a period of 2 months, were screened, reviewed and followed up for a period of two years. Incidence of seizure disorder is 4.37% with male predominance. Of which febrile seizures (52.5%), Generalized Seizures (25.5%), partial seizures (12%), besides unclassified (10%) and status epilepticus (10%). 12% of the children had positive family history of epilepsy and 14.56% had history of previous febrile convulsion. Birth injuries (19.4%) and CNS infection (38.6%) and space occupying lesions (9.7%) constitute the major etiological factors. 10% patient with seizure disorder had abnormal neurological signs. EEG Examination showed 56.8% normal and 33.2% Generalized abnormality. On follow up 51% where found regular, out of which 30% went into remission.
Conclusions: Seizure disorder is quite significant condition in children. Though benign, the febrile seizures are the most common type of seizure in children. The major preventable etiological factors for seizures are Birth trauma and CNS infections. Clinical and EEG work up is necessary for proper management of seizures. Health education is needed to stress the importance of regular treatment and to educate for removal of stigmata.

Keywords: Antiepileptic drugs, EEG, Electroencephalography, Febrile convulsions, Generalized convulsions, Seizure disorder

INTRODUCTION

Seizure disorder is a general term which is usually used to include any one of several disorders including epilepsy, febrile seizures and possibly single seizures and seizures secondary to metabolic conditions and infections etc.[1,2] We currently have better understanding of various antiepileptic medications which includes regarding their adverse effects on cognitive function as well. Further still more newer antiepileptic medications are being developed because of better understanding of neurotransmitters and pathophysiology of epilepsy.[3,4]

Few children with epilepsy may show signs of neuropsychiatric symptoms.[5] Approximately 1 in 200 of General population suffers from epilepsy often for a major part of their lives and studies have shown most with epilepsy have normal intelligence. Febrile seizures are the most common type of seizures in childhood, affecting 2-4 percent of children under 5 years of age and for the majority a febrile seizure is a benign event though certainly frightening for the parents.[6] In child with seizure disorder were mostly preferred to be managed in hospital care satisfactorily than adults according to a survey.[7] It has been proved that earlier the age of onset in seizure has definitely influenced the psychomotor and intellectual functions than later the age of onset of seizure.[8] It has been seen that sometimes the patient may move from one syndrome to another during the evolution of the epilepsy as the age progresses.[9] There have been papers talking about seizure disorders with information about the etiology, prognosis, and genetic aspects but still our understanding of the causes of epilepsy in children is incomplete.[10] Aims of this study were to study incidence and prevalence of seizure disorder in Children in the age group of 6 months to 5 years, attending pediatric department of a general hospital, to classify each type of seizure disorder among the group under consideration and to evaluate the etiological factors of seizures, their frequency and the response to anticonvulsant medications.

METHODS

Data collected from patients parents in the age group of 6 months to 5 year, attending pediatric, department of teaching general hospital, over 2 months period, presenting with seizure disorders Majority of the patients were followed up over a period of 2 years.

Data was analysed under the headings

- Age of onset
- Type of Seizure
- Family history of epilepsy and febrile convulsions.
- Probable causative mechanism
- EEG and were classified as
  a. General abnormality
  b. Focal abnormality
  c. Hypsarrythmia
  d. Normal
- Other relevant investigations
  a. Mantoux test
  b. Funduscopy
  c. CSF
  d. CBC
  e. ABG
  f. Serum Electrolytes
  g. Serum Calcium
  h. Blood Sugar

Radiological investigations such as X ray skull (A/P. and Lateral View), CT scan and MRI

RESULTS

Total 4560 patients in the age group of 6 months to 5 years who attended Pediatric Department of the hospital were screened for an evidence of seizure disorder.

Table 1: Total number of patients positively screened for seizure disorder.

Total no. patients	4560
Total no. of cases with seizure disorders	200 (4.37%)
Sex	
Male	108 (54%)
Female	92 (46%)
M:F	1.1: 1

Table 2: Age and sex distribution of positive cases.

Age groups	Male	Female	Total
6months -1 years	31(15.5%)	35(17.5%)	66(33%)
1year-5years	77(38.5%)	57(28.5%)	134(67%)
Total	108	92	200

The patient with seizures were analyzed on the History, clinical examinations, investigations done such as MT, fundus, CSF, CHF, CBC, serum calcium electrolyte, blood, sugar, ABG, EEG, X ray skull, CT scan, and MRI. These patients were subsequently followed up as regards their therapeutic response to suitable anticonvulsant medications.

Table 3: Specific distribution of seizure disorders.

Type	Male		Female		Total
	6 Months-1 Year	1 Year -5 Year	6 Months-1Year	1 Year to-5 Year	
Febrile	22	36	17	30	105
Generalized	2	28	8	13	51
Partial seizures	3	7	5	9	24
Unclassified	3	2	3	2	10
Status	1	4	2	3	10
Total	31	77	35	57	200

Table 4: Percentage of each type.

Type of seizures	Percentage
Febrile seizures	52.5
Generalized seizures	25.5
Partial seizures	12
Unclassified seizures	05
Status epileptics	05

The result of this total study including the follow up is mentioned in the following tables arranged in a serial order. Positive family History was found in generalized and febrile seizures mainly.

In the family there were one or more siblings affected. followed by parents and finally be Grandparents and uncle and aunt.

Table 5: Age of onset in febrile seizures.

	6 Months-1 Year	1-2 Years	2-3 Years	3-4 Year	4-5 Year	Total
Male	22	20	8	5	3	58 (55.23%)
Female	13	18	9	5	2	47 (44.77%)
Total	35	38	17	10	5	105
Percentage	(33.33)	(36.16)	(16.19)	(9.55)	(4.77)	

Table 6: Type of seizure disorder and family history.

	Parents Both/Anyone		Sibs	Aunt and uncle	Grand parents	Cousins	Total
Febrile	0	1	2	0	1	0	4
Generalized	0	5	6	0	2	2	15
Partial	0	1	0	1	0	1	3
Unclassified	0	0	1	0	0	0	1
Status Epileptics	0	1	0	0	0	0	1
Total		8	9	1	3	3	24
Percentage=12%							

Table 7: History of previous febrile convulsion.

Type of Epilepsy	Children 4-5 yrs.	Previous-history-of febrile convulsions	%
Generalized	37	5	14.1
Partial	12	2	6.22
Total	49	7	14.56

Etiological factors were demonstrated in Generalized and partial type of seizures. Thus 74% of generalized and 33% of partial seizures were idiopathic.

In cases presented with Generalized seizures, EEG was normal in 25.4% cases while 74.6% had evidence of Gen. Abnormality. In case of partial seizures EEG was normal in 25% of cases while in 16.5% there was an evidence of secondary generalization.

In case of febrile seizures EEG abnormality was detected in 25.8% of cases while 74.2% had normal EEG. Thus, in total out of 190 patient who went EEG investigation about 56.8% had normal EEG while about 43.2% had abnormal EEG findings.

It was a randomized double-blind study. The treatment was started at random, considering, clinical feature, EEG changes, the cost of the drug, availability of drugs, socio-economic conditions of the parents and the tolerance and response to the drugs.

Thus, out of 200 patients, only 188 followed up out of which 102 were regular and 86 irregular. Out of these 102, 60 pts. were seizure free over 2 years, 35 had intermittent seizure episodes once or twice a month while 7 had poor control. Out of these 7 patients 4 developed status epileptics.

The distribution of specific type of Seizure disorder is

- Febrile seizure-52.5%
- Generalized-25.5%
- Partial Seizures-12%
- Unclassified-5%
- Status Epileptic us-5%.

Table 8: % of causative mechanism.

Etiological factor	Generalized seizures	Partial seizures	Total	Overall out of 200 cases.
Congenital anomalies	0	0	0	0
Birth injuries (during LSCS, Forcep Delivery ETC)	4	2	6 (28.4%)	3%
Prematurity	2	0	2 (9.6%)	1%
CNS infections	5	3	8 (38.6%)	4%
Head Injury	0	1	1 (4.8%)	0.5%
Vascular	1	0	1 (4.8%)	0.5%
Space-Occupying Lesions	0	2	2 (9.6%)	1%
Miscellaneous	1	0	1 (4.8%)	0.5%
Total	13 (6.5%)	8 (4%)	21	10.5%

Table 9: Abnormal neurological signs.

Neurological Abnormality	Febrile	Generalized	Partial	Unclassified	Total
Monoparesis	0	0	0	0	0
Hemiplegi A	0	2	2	-	4
Cerebral palsy	5	1	2	-	8
Mental Retardation	5	1	1	-	7
Miscellaneous	1	0	0	0	1
Total	11 (5.5%)	4 (2 %)	5 (2.5%)	-	20 (10%)

Table 10: Various types of EEG abnormality.

Types-of Epilepsy	Generalized Abnormality	Focal Abnormality	Hypsarythmia	Normal	Total
Febrile Seizures	24	-	3	78	105
Generalized Seizures	35	1	2	13	51
Partial Seizures	4	14	-	6	24
Unclassified	-	-	-	10	10
Total	63 (33.2%)	15 (7.44%)	5 (2.56%)	107 (56.8%)	190

Table 11: Types of anticonvulsants used in various seizure disorder.

Drugs used	Generalized	Focal
Phenobarbitone (5mg/kg/day)	39	8
Phenytoin (5mg/kg/day)	6	13
Ethosuxemide (10mg/kg/day)	-	-
Sodium valproate (15mg/kg/day)	6	1
Carbamazepine (10mg/kg/day)	-	2
Combination	6	-

Table 12: Follow up of cases.

Total	Period	Regular = 102			Irregular =86	Status
		No attack	Partial control	Poor control		
188	2 years	60 (30%)	35 (17.5%)	7 (3.5%)	86 (43%)	4 (2%)

DISCUSSION

Seizure disorders are one of the common illnesses which we encounter in routine pediatric practice.

Incidence: In this study, we found incidence of 4.3% in age group of 6 month to 5 years, with male to female ratio of 1.1: 1 showing slightly male preponderance as seen in Table 1 and 2.[2-4] The exact cause remains unknown but different studies have explained that males are more liable for birth injuries and congenital anamolies.[12,15] Talking about distribution of seizure disorders in present study as shown in Table 3 and Table 4 it is found that the febrile seizure which is considered

as a separate entity, are most common in the early childhood followed by generalized seizure disorder. As regards age of onset seizures were commonly seen in earlier age group more from 6 months to 2 years.[8] This may be because the patients attending general hospital are usually from lower socioeconomic strata of society and and their educational status and other factors like poverty and social stigmata makes them attend the hospital only when the child has acute illness.

Having seizure and epilepsy classifications are exceedingly important for the clinicians and care teams, patients and families, and researchers and have been done since 1964 by International league against epilepsy (ILAE) till latest modifications by 2017.[11] It is important to have a look at environmental factors in society and parental attitudes may play a role to rehabilitation a child with seizure disorder.[12] There is a group of children with epilepsy who may have related members from family having had seizure disorder strongly pointing to genetic predisposition.[13]

Genetic Factors

When we analyzed the family background of patients with seizure disorders, as mentioned in Table 6, it was observed that in the present study over all 24 (12%) of patients had positive family history 12 out of total 200 cases, of which mainly in 3.8 % in febrile seizures, 29.4 % in case of Generalized seizure. The present study thus supports the theory of genetic pre-disposition to epilepsy or seizure disorders.

The generalized tonic-clonic seizures are the most common type of nonfebrile seizures in childhood and further detailed in the handbook of clinical neurology.[14,15] The major predictor of recurrence of febrile seizure was early age at onset.[16] Prevalence was higher for males than females for all types of epilepsy.[17] A relation has been reported between different types of clinical seizures and the electroencephalographic patterns that accompany them.[18]

Table 7 shows the previous history of febrile convulsions in patients who later developed epilepsy in form of generalized or partial seizures was around 15%.

Table 8 shows the etiological factors for the Seizure disorders.[18] Most common causes were Birth Injuries and CNS infections (around 38%) while other causes like prematurity and Space occupying lesions were less common (around 9%). Head injury, vascular and other miscellenous causes were rare (around 1%). Birth Injuries including the deliveries that required interference (Difficult Forceps, LSCS etc.) are anoxic in nature and was thought to be one of the main causes of sympotomatic Epilepsies. Intracranial infections in the form of Encephalitis, meningitis formed other important group of Symptomatic epilepsies. The magnitude of this problem is greater especially in developing countries like ours due to high incidence of infectious diseases. These are the factors which can be prevented if diagnosed earlier in time and if optimum therapeutic management is received.

Although Epilepsy following atherosclerotic vascular lesions are common in adults, but in pediatric age group Vascular lesions leading to permanent motor deficit resulting in acute infantile hemiplegia are associated with Epilepsy in half of the cases. However here the lower occurrence of vascular as etiological cause is attributed to the fact that in our series sample size was small and all the seizures disorders are taken into account, not only the epilepsy as in the other studies.

In present study 9.8% of the patient with symptomatic seizure disorders showed SOL which were mainly diagnosed as Tuberculoma as a causative factor. The absence of congenital cerebral defects in the present study may be due to perhaps inadequate investigations due to lack of resources, which probably might have been missed.

According to Table 9 it is seen that Out of total 200 cases around 20 patients (10%) had various abnormal neurological signs in the form of Hemplegia, Cerebral palsy and Mental retardation. Neurological defects more common if there was perinatal insults. However, it doesn't mean that all children with perinatal issues have epilepsy in future.[19] Electroencephalography (EEG) changes in Seizure disorder. It has been shown that perinatal difficulties has lead to convulsion as the child grows.[20] In infancy with infantile spasm most cases cause is unknown while rest showed perinatal insults.[21] Though morbidity is known seizure disorder in itself is hardly the cause of mortality.[22] The diagnosis and treatment of focal epilepsy have been greatly improved by modern neuroimaging methods.[23] As most febrile convulsions have a good long term prognosis, the routine use of continuous phenobarbitone or valproic acid prophylaxis is not indicated in simple febrile seizures and only rarely in complex febrile seizures.[24]

Electroencephalography has been one of the important development in the study of epilepsy. EEG is a graphic representation of a electrical and physiological activity in the brain. The paroxysm of EEG however, does not represent a seizure in itself. It must be interpreted after correlating with clinical findings. The studies of different EEG patterns have been described in details in atlas.[25]

The interpretation of EEG in infants and children is difficult than that of adults.

Out of total 200 patients EEG was done in 190 cases, out of which 107 patients (56.8%) had normal EEG (Table 10). The patients who had abnormal EEG findings large proportion of them showed Generalized abnormally. 2% Focal epileptic abnormality in 7.4% and Hypsarrythmia in 2.56% of cases.

EEG may assist in establishing the prognosis and effects of maintenance chemotherapy and effects of maintained chemotherapy in various types of seizure disorder.

It has been noted that only very few children with very high risk of recurrence of febrile seizures need to be exposed to anticonvulsant therapy.[26] A further EEG study of abnormal theta rhythm of early childhood was investigated by spectral analysis.[27] Recurrences of febrile seizure is known fact and studies have shown a third of all recurrences had taken place within 6 months of the first episode, half within 13 months, and nearly all within 30 months.[28] Interictal electroencephalography (EEG) has limitations in the diagnosis of epilepsy because of its dependence on the occurrence of epileptiform discharges.[29]

The earlier the onset of seizures, the higher is the probability of their association with mental sub normality and neurologic deficits.[30] After stopping anticonvulsant drug therapy after seizure free period of minimum of 2 years, it has been noted in studies that more than half of the relapses occurred during the withdrawal period or within 3 months and most definitely within 1 year after discontinuation of therapy.[31] Among intractable seizure disorders temporal lobe epilepsy is common in children which are complex and involve behavioral automatism.[32]

In childhood though the partial seizures occur frequently the clinical and EEG manifestations have not been well described. Simple partial seizures were short in duration and consisted primarily of motor symptoms and were not associated with postictal impairment. Complex partial seizures were longer and could be categorized into four subgroups based on the initial clinical manifestations: staring, automatisms, motor phenomena, and drop attacks.[33]

Treatment

In the present study, as it was a randomised double blind study, the treatment was started at random, considering clinical features, EEG changes, the cost of the drug, availability of drugs, socio-economical conditions of the parents and the tolerance and response to the drugs.

As per Table 11 in the present study it can be seen that for patients with Generalized seizures, 39 were put on started on Phenobarbitone and 6 were on Sodium Valproate while remaining 6 were on Phenytoin. Similarly, for focal seizures, 8 patients were on started on Phenobarbitone, 13 patients were on Phenytoin, 1 on sodium Valproate and only 2 patients were started on Carbemazepine.

It has to be noted that the drugs Sodium Valproate and Carbamazepine were seen in fewer patients than indicated, was because of the cost of both the drugs was high, and as majority of patients were from poor socio-economic class.

Also, the easy availability of Phenobarbitone and Phentoin freely on schedule of number of General hospitals in India helps to start on those drugs then others.

The patients with febrile convulsions were not started on any drugs but a health talks were given to the parents, explaining the nature of the illness in detail and its outcome.

Also, they had been taught the important of measures used in bringing down the temperature by tepid sponging and using antipyretics like paracetamol in proper dosage whenever their child gets a febrile episode. Administration of rectal Calmpose 24 was taught to 50 out of 105 cases who were at risk of developing recurrent febrile seizures.

Follow up

Out of 200 patients, of seizure disorders only 180 patients were followed up. Of which 86 patients were irregular in their followup and remaining 102 patients were regular in their follow-up.

Out of those 102 patients 60 patients (30%) had no more convulsions, 37patients (17.5%) had intermittent seizure episodes while 7 patients (3.5%) had poor control. The unsatisfactory results of medical treatment could be explained because of poor patient compliance due to socio-economic problems and lack of education and knowledge about the illness. The importance of attempts to achieve complete seizure control should be stressed with realistic and positive attitude. Further efforts are needed for giving public education, group discussion and arranging camps for children suffering from seizure disorder to have better impact on awareness and management of seizure disorders.

CONCLUSION

In this study 200 children's with seizure disorders for 2 months period, were screened, reviewed and followed up for a period of two years.

The type of seizure disorder, age of onset, family history of seizures, previous history of febrile convulsions, presence of neurological abnormalily, EEG changes and response to medicines was noted.

The seizures were classified using a guideline provided by international classification of Epilepsies and Epileptic syndromes. Overall incidence of seizure disorder found is 4.37%. The incidence in age group 6 months to 1 year is lesser 33% as against that in 1-5 years is higher around 67%.

In the present study it was found that most of them were of febrile seizures (52.5%) followed by Generalized Seizures (25.5%) and still lesser partial seizures (12%)

while fewer were unclassified (5%) and status epilepticus (5%).

Male is to female ratio had shown 1.1:1 showing male predominance. The peak age of onset in febrile seizures has found 18 months of age. 12% of the children with seizure disorder had positive family history of epilepsy, suggesting genetic influence. 10.5% of total seizures were symptomatic, of which birth injuries (19.4%) and CNS infection (38.6%) and space occupying lesions (9.7) constitute the major etiological factors besides other etiological factors. 10% patient with seizure disorder had abnormal neurological signs in the form of hemiplegia, Cerebral palsy, and mental retardation.

EEG Examination showed 56.8% normal, 33.2% Generalized abnormality, 7.45% focal abnormality and 2.56% with Hypsarrythmias. On followed up 43% were found irregular,51% where found regular. Of those who followed up regularly 30% went into remission, 17.5% had partial control and 3.5% had poor control. Of those who had poor control 2% who deteriorated and subsequently went into status epileptics.

We thus conclude that Seizure disorder in children is significant condition. The febrile seizures are the commonest type of seizure disorder in the early childhood. The major etiological factors like Birth trauma and CNS infections which can result into symptomatic Seizure disorder can definitely be prevented.

We do need a thorough clinical and Electro-encephalographic work up to diagnose and manage various seizure disorders. Health education is needed to explain the importance of regular treatment with anticonvulsants and to remove the stigma that is associated with the seizure disorders in a mind of common man in our society.

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REFERENCES

1. Mikati M. Approach to Epilepsy in Children. Indian J Pediatrics. 1990;57:297-312.
2. Lennox WG. The heredity of epilepsy as told by relatives and twins. J AM Med Assoc. 1951;146:529-36.
3. Lennox WG: Epilepsy and related disorders. J Mental Sci. 1960;108:241-2 2.
4. Lennox WG, Jolly DH. Seizures, brain waves and intelligence tests of epileptic twins. Research publications-association for research in nervous and mental disease. 1954;33:325.
5. Michael R, Philip G, William Y. A neuropsychiatric study in childhood. Mac Keith Press. 1997 35;35.
6. Vandenberg BJ. Recurrence of febrile convulsions in young children. Epilepsia.1974;2:177-89.
7. Poole K, Moran N, Bell G, Solomon J, Kendall S, McCarthy M et al. Patients' perspectives on services for epilepsy: a survey of patient satisfaction, preferences and information provision in 2394 people with epilepsy. Seizure-European J Epilepsy. 2000;9, 551-8.
8. Dikmen S, Matthews CG, Harley JP. The effect of early versus late onset of major motor epilepsy upon cognitive-intellectual performance. Epilepsia 1975;16:73-81.
9. Dreifuss FE, M. Martinez-L, Roger AJ. Proposal for classification of epilepsies and epileptic syndromes. Epilepsia. 1985;26:268-78.
10. Leviton, Alan, and Linda D. Cowan. Epidemiology of Seizure Disorders in Children. Neuroepidemiol. 1982;1:62-83.
11. Caveness WF, HAAS JK, MERLIS AM LORENT, RADERMECKER J. A proposed international classification of epileptic seizures. Epilepsia. 1964;5:297-306.
12. Gregoriades, AD. A medical and social survey of 231 children with seizures. Epilepsia. 1972:13-20.
13. Metrakos K, Julius DM. Genetics of convulsive disorders II. Genetic and electroencephalographic studies in centrencephalic epilepsy. Neurol. 1961;11:474.
14. Hirtz DG. Generalized tonic-clonic and febrile seizures. Pediatr Clini North America. 1989;36:365-82.
15. Vinken PJ, Bruyn GW (eds): Handbook of Clinical Neurology. Amsterdam, North Holland Publishing Co. 1974;6.
16. Nelson, Karin B, Ellenberg JH. Prognosis in children with febrile seizures. Pediatri. ;197861:720-7.
17. Hauser WA, Kurland LT: Epidemiology of epilepsy in Rochester, Minnesota, 1935-1967. Epilepsia. 1975;16:1-66.
18. Gibbs FA, Gibbs EL, Lennox WG. Electroencephalographic classification of epileptic patients and control patients. Arch Neurol Psychiat. 1943:111;7
19. Keith HM, Robert PG. Neurologic lesions in relation to asphyxia of the newborn and factors of pregnancy: long-term follow-up. Pediatri. 1960;26:616-22.
20. Mundo-Vallarta D, Josefina, Robb JP. A follow-up study of newborn infants with perinatal complications Determination of etiology and predictive value of abnormal histories and neurological signs. Neurol. 1964:14;413.

21. Millichap JG, Bickford RG, Klass DW, Backus RE, Infantile spasms, hypsarhythmia, and mental retardation. a study of etiologic factors in 61 Patients. Epilepsia. 1962;3:188-97.
22. Cooper JE. Epilepsy: In A Longitudinal Survey Of 5,000 Children. Brit Medi J. 1965;5441:1020-2.
23. Schmidt RP, Wilder BJ. FA. Davis Co, Epilepsy; Philadelphia, 1968.142
24. Knudsen, Ursin F. Optimum management of febrile seizures in childhood. Drugs. 1988;36:111-20.
25. Gibbs FA, Gibbs EL. Atlas of encephalography. 2, Cambridge, MA: Addison-Wesley, 1952.
26. Kajitani T. Follow-up study of children with simple febrile convulsions and epileptiform. EEG activities without chronic anticonvulsant medication. Brain Dev. 1983;5:339:38.
27. Taistra, Rainer, Gerken H, Doose H. EEG spectral analysis in children with febrile convulsions. European Neurol. 1976;14:1-10.
28. Frantzen E, Lennox-Buchthal M, Nygaard A. Longitudinal EEG and clinical study of children with febrile convulsions. Electroencephalography and clinical neurophysiology. 1968;24:197-212.
29. Goodin, Douglas S, Michael JA. Does the interictal EEG have a role in the diagnosis of epilepsy?. Lancet. 1984;323::837-9.
30. Sofijanov, Nikola G. Clinical evolution and prognosis of childhood epilepsies. Epilepsia.1982; 23;1982:61-9.
31. Todt H. The late prognosis of epilepsy in childhood: results of a prospective follow-up study. Epilepsia. 1984;25:137-44.
32. Ounsted C, Lindsay J, Norman R. Biological factors in temporal lobe epilepsy. Clin Develop Med. 1966;135.
33. Holmes, Gregory L. Partial seizures in children. Pediatri. 1986;77:725-31.

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