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ORIGINAL ARTICLE

Childhood epilepsy in the Department of child health Dr. Pirngadi Hospital Medan

by

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Abstract

A retrospective study of epilepsy cases had been done from January 1978 to December 1982. The aims of this study was to know the incidence, type and result of treatment of epilepsy in the Department of Child Health Dr. Pirngadi Hospital, Medan, Indonesia. 103 cases of epilepsy were investigated. This was 0,10% of total patients in OPD as well as inpatients during this period, consisting of 56,32% boys and 43,68% girls. According to the classification of The International League Against Epilepsy (ILAE) all of the patients had generalized epilepsy, consisting of 68,93% primary generalized epilepsy and 31.07% secondary generalized epilepsy. Thus the incidence of epilepsy was low, with a preponderance of primary generalized epilepsy. Of these patients only 18.44% came regularly for control. They were treated with a single drug namely phenobarbital, with good results.

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Introduction

Epilepsy is a condition with paroxysmal recurrent disorders of convulsion, consciousness, sensation or behaviour, as a result of cerebral disturbances (Covanis et al., 1980; O. Donohoe,1980). Cerebral disturbances which cause excessive neuronal discharges, give rise to clinically apparent recurrent seizures (Aicardi, 1982). Livingstone (1972) gave an overall incidence for epilepsy of 1 percent. Brown, Cockburn and Forfar (1972) found that the prevalence in newborn was 12/1000 and Brown (1980) found only 6/1000. Thom (1942) stated that from 6 to 7 percent of unselected groups of children had a fit before 5 years of age (Aicardi, 1982). The corner stone of the clinician's management of epilepsy is their classification (Aicardi, 1982; Gestaut, 1969; Lumbantobing, 1983). A satisfactory classification of epilepsy is based on the report of Gestaut (1969) at the International League Against Epilepsy stating that there are 3 types, namely the 1. generalized, 2. partial and 3. unknown type.

The basic criteria are based on clinical, EEG pattern, etiological and chronological aspects. In developing countries, classification is arbitrarily used and based on clinical symptoms only, due to lack of facilities for investigations. Generalized epilepsy (GE) can further be subdivided into the primary and secondary varieties. In primary generalized epilepsy there occurs a generalized seizure and is usually unassociated with neuropsychiatric disorders. It is generally assumed to be predominantly of genetic nature.

The secondary generalized epilepsy is frequently associated with other neuropsychiatric disorders (Baker, 1967; Deshpandi and Harding 1982; Gerija and Cherian, 1982) and gives rise to seizures which may be either generalized from the start or secondary generalized from a focal source which is not apparent.

Partial epilepsy (focal) is associated with cortical seizure discharges which are either localised or diffuse (Aicardi, 1982; Gestaut, 1969). The patterns of seizure itself is determined by the site of discharge origin. This is typically associated with more or less evident organic etiology and may be further subdivided topographically into frontal lobe, temporal lobe epilepsy etc. They may be classified in accordance to their predominant type of seizures for example, simple, complex, psychomotor epilepsy etc. (Aicardi, 1982).

Prophylactic medication for epilepsy is very important in order to prevent or reduce further lesion of brain tissue by long or continuous convulsions (Aiges et al., 1980; Camfield et al., 1980; Thorn, 1980). Phenobarbitone has proved to be universally effective in reducing the incidence of subsequent convulsion (Faero et al., 1972; Fox et. al., 1973; Thorn, 1975; Wallace. 1975 : Wolf et. al., 1977). There are some side effects of phenobarbitone or an inverse effect on the growing brain such a hyperactivity and irregular sleep (Thorn, 1975; Wolf and Forsythe, 1978). To avoid side effects of phenobarbitone many centres in developed countries have used sodium valproate (Cavazzutti 1975; Covanis and Jeavons, 1980; Henricksen and Johanessen, 1980; Jeavons, 1980).

The purpose of this paper is to report data about childhood epilepsy in the Department of Child Health, Medical School, University of North Sumatera, and the effectiveness of treatment with phenobarbitone.

Material and methods

This is a retrospective study on patients attending the Subdivision of Pediatric Neurology since January 1978 until June 1982. The diagnosis of epilepsy is based on history, physical and neurological examination. On few cases EEG was performed. History were taken from the parents or relatives including the onset, the episode and the post attack period. The possibility of breath holding spells and syncopal attacks must be excluded; mental impairment was assessed by delayed milestones. All were new cases who had never received any anticonvulsive drug before.

Generalized epilepsy was assessed when in the history there was generalized convulsion like grandmal, petit mal, myoclonic or akinetic attacks. Generalized epilepsy unassociated with any neurological and milestone abnormality were grouped into primary generalized epilepsy and those associated with some neurological and milestone abnormalities were grouped into secondary generalized epilepsy. Partial epilepsy was assessed when the convulsion started clearly from one part of the body. EEG investigation as an Electroencephalographic interictal expression was done in a private clinic and read by a neurologist. Treatment with phenobarbitone as a single drug was given with a dosage of 3 – 5 mg/kg body weight, once or twice daily.

Examination of blood plasma level for phenobarbitone was not done due to lack of facility. Regular patients were those who come back for reexamination or control 6 times or more in a year and continued to take the drug during 18 – 24 months. The treatment is said to have a good result, if the seizures are completely controlled during 18 – 24 months consecutively; fair if the frequency decreased and bad if there was no response at all.

Result

From January 1978 to June 1982, 103 cases of epilepsy were treated. This is 7.15% of the total patients visiting the Subdivision of Pediatric Neurology and 0.10% of the total pediatric patients visiting the Out Patients Department as well as inpatients during that period.

TABLE 1 : *The Epileptic cases during 1978 – June 1982.*

Type	Year					Total
	1978	1979	1980	1981	1982	
Generalized Epilepsy						
a. Primary	1	13	19	22	16	71
b. Secondary	1	7	3	6	15	32
Partial Epilepsy	–	–	–	–	–	–
Total	2	20	22	28	31	103

Table 1 shows that all cases were generalized epilepsy consisting of 71 cases (68.93%) with primary generalized epilepsy and 32 cases (31.07%) with secondary generalized epilepsy.

TABLE 2 : *The Distribution of Epilepsy cases by Age and Sex.*

Age	Sex		Total
	Boys	Girls	
0 –	12	14	26
1 –	6	5	11
2 –	10	1	11
3 –	5	5	10
4 –	1	1	2
5 –	5	1	6
6 –	3	3	6
7 –	2	–	2
8 –	1	2	3
9 –	–	4	4
10 –	3	3	6
11 –	1	4	5
12 –	3	–	3
13 –	3	2	5
14 –	3	–	3
Total	58	45	103

The age of these cases varied from 1 month to 14 years. Boys were more than girls with the ratio 1.3 : 1. Total cases below 5 years were 60 cases (58.25%) and above 5 years are 43 cases (41.75%). (Table 2).

TABLE 3 : *EEG Investigation.*

Pattern	Clinically		Total
	Primary GE	Secondary GE	
Normal	5	3	8
Primary GE	7	–	7
Secondary GE	16	6	22
Total	28	9	37

On 37 of the 103 cases (35.92%) EEG investigation was done. Out of the 28 cases, clinically diagnosed as Primary Generalized epilepsy, only 7 cases (25%) had corresponding EEG patterns, normal tracing were recorded in 5 cases (17.86%), while the rest, 16 cases (57.14%), showed EEG patterns characteristic to secondary generalized epilepsy. Of the 9 cases clinically diagnosed as secondary generalized epilepsy 6 cases (66.66%) had corresponding EEG patterns, and normal tracing were recorded in 3 cases (33.34%). (Table 3).

Based on EEG pattern alone, 8 (21.62%) from 37 cases showed normal patterns, 7 cases (18.92%) as primary generalized epilepsy, while the rest, 22 cases (59.46%) as secondary generalized epilepsy.

TABLE 4 : *Follow up of Epileptic cases.*

Type	Total	Control					
		Regular		Irregular		Never	
		No.	%	No.	%	No	%
Primary GE	71	16	22.53	12	16.90	43	60.59
Secondary GE	32	3	9.38	13	40.62	16	50.00
Total	103	19	18.44	25	24.28	59	57.28

Nineteen (18.44%) out of 103 cases came regularly for control. All patients, were treated with a single drug namely phenobarbitone during 18 – 24 months and no convulsion occurred again (Table 4).

Discussion

The exact incidence of epilepsy in Indonesia is not known (Lumbantobing, 1983). The occurrence of childhood epilepsy in the Subdivision of Pediatric Neurology, Department of Child Health, Medical School, University of North Sumatera is 7.15%. In the Subdivision of Pediatric Neurology, University of Indonesia Jakarta it is 8.8% (Lumbantobing, 1983). Our study showed that epilepsy occurred in 0.10% of the total pediatric patients visiting the out patient as well as inpatient Department during that period.

In Seoul (Korea) it is higher (0,67%) (Ko, 1982). This difference may be due to the difference in criteria and method for making the diagnosis.

On 37 (35.98%) out of 103 epileptic cases EEG investigation was done. It was not routinely done because our cases were mostly from low socioeconomic class and the cost for it is $ 20.

Based on EEG pattern alone 22 cases (59.46%) showed secondary generalized epilepsy, 7 cases (18.92%) as primary generalized epilepsy and 8 cases (12.62%) had normal patterns. Based on clinical classification there were more primary generalized epilepsy (68.93%) than the secondary generalized epilepsy (31.07%). Here we could see the inverse result of the two bases of classification.

From 28 cases with clinical diagnosis as primary generalized epilepsy, 16 cases

(57.64%) showed EEG pattern characteristic to secondary generalized epilepsy and 6 (66.66%) out of the 9 cases clinically diagnosed as secondary generalized epilepsy had corresponding EEG pattern. It was shown that clinical primary generalized epilepsy was not so equivocal to EEG pattern (Gestaut, 1969; O. Donohoe, 1980). The difference between the finding of the two bases of classification may be due to the fact that the criteria of clinical classification in our cases were not satisfactory.

We had not performed psychotest due to lack of facility. Symptomatic disorders are common in infants and children. The lesion of the brain in infants is usually due to asphyxia, hypoxia, birth trauma, maldevelopment and infection. Our cases were 58.25% below 5 years old.

O. Donohoe (1980) stated that with increasing knowledge and advances in diagnostic techniques, more cases of primary generalized epilepsy fall into what is called the secondary generalized epilepsy.

In infants and children the type of fit may change with age due to the development of the brain tissue.The type of seizures in infants and children can be confirmed by EEG finding in the interuptal period.For these reasons EEG investigation is necessary beside clinical examination for classification of childhood epilepsy. We did not find any case with Partial Epilepsy. This may due to the fact that our clinical diagnosis were mainly based on history from the parents. From 37 cases with EEG investigation, there was not any seen with the characteristics of Partial Epilepsy.

All cases were treated with phenobarbitone as single drug given once or twice daily for 18 – 24 months. Phenobarbitone was chosen because most of our epileptic patients were from low socio-economic class and we know that antiepileptic therapy should be given for several years. Phenobarbitone is also easily available. Cases who came regularly for control and took phenobarbitone continuously had good results. There was no side effects of phenobarbitone seen. Neither did Faero et al. (1972), Fox et al. (1974), Thorn (1975), Wolf et al. (1977) and Lumbantobing (1983) find any side effects.

Conclusions

1. We found in this study the occurrence of childhood epilepsy to be 0.10% of the total pediatric patients visiting the Out Patient as well as inpatient Deparment.
2. Based on clinical classification we found 68.93% as primary generalized epilepsy and 31.07% as secondary generalized epilepsy.
3. EEG investigation is necessary beside clinical examination.
4. Phenobarbitone as single drug for the treatment of childhood epilepsy gave good results.

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