FAMILY STUDY OF CHILDREN WITH FEVER AND FITS-CLINICAL AND E.E.G. PATTERN

Pages with reference to book, From 94 To 97

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Abstract

Eight children (and their families) presenting with fever and fits were investigated to determine how many were "Benign Febrile Convukions" with a good prognosis, if selected ynder a strict criteria and to stop the loosely used term febrile convulsions for all types of convulsions.
There were 42 (52.5%) males and 38 (47.5%) females. Sixty-five (81 .25%) children were between 6 months to 3 years of age. The seizures were grandmal in type; with no focal neurologic component. History of fits was present in 22 families, epileptic fits in 8 (10%) and febrile fits in 14 (17.5%). E.E.G. abnormalities with definite epileptic foci were seen in 6 patients (7.5%), 5 siblings (2.8%), one father (1.3%) and one mother (1.3%). (JPMA 37 : 94, 1987).

INTRODUCTION

Febrile seizures are an age-related form of convulsions that occur within the context of a febrile illness. They are one of the most common pediatric medical emergencies, affecting 3-5% of young children.[1-4] Despite this, the definition, management and prognosis continues to be a source of disagreement among physicians. The object of this study was to determine how many are true benign febrile convulsions with a good prognosis and how. many are convulsions with fever, the prognosis of which is variable depending on the underlying etiology.
Fo fall into the category of benign febrile convulsions with good prognosis, the child should not be less than 6 months nor over 5 years of age. The fit should occur only with the rapid rise of temperature, and should not be repeated during that spike of temperature; there should be a clear history that the child was unwell at least for an hour or two before the convulsion occurred; the fit should not last for more than 10 minutes; it should not be focal and there should be no neurologic deficit. There must be no past history of non febrile convulsion; no family history of epilepsy, but a history of febrile convulsions is acceptable. The E.E.G. should be normal both in the child and his/her family.

MATERIAL AND METHODS

This prospective study comprised of 80 children admitted in the medical ward of National Institute of Child Health, Jinnah Postgraduate Medical Centre, Karachi. The duration of the study was 18 months (July, 1984 to January, 1986).
Their ages ranged from 3 months to 6 years. All children were either convulsing at the time of admission, or had a seizure prior to being brought to the hospital. Detailed histories of these children and their families (Fathers 77, Mothers 79: Siblings 161) especially regarding fits was taken. In most cases, the fit did not last for more than 10 minutes. The nature of fit was grand-ma! type. Their temperatures ranged from 101-105°F. B.P. was normal in all children. Following cessation of seizure, no neurologic deficit or intracranial pathology was observed.
In most of the children a history of upper respiratory tract infection or gastroenteritis 1 -2 days prior to seizure was obtained - Complete physical examination was done 'and recorded. Complete blood count, blood sugar, BUN, serum electrolytes, serum calcium and phosphate estimations and urinalyses were

done in all children. They were also screened for tuberculosis. CSF was examined to exclude infections.

Children selected under strict clinical and laboratory criteria, were then subjected to E.E.G. studies 10 days after the seizure. E.E.G.'s were done under standard condition and under sedation with trichloryl. Scalp-pads and 10-20 international electrode placement system was used. The E.E.G.'s were interpreted by one of the authors (H.A), E.E.G. abnormality for the purpose of this study was classified according to the following criteria:

Group-A: Diagnostic for Epilepsy:

Presence of spikes, sharp waves — slow wave complexes either isolated, localized outbursts or in a synchronized spread unilaterally or bilaterally.

Group- B: Highly Probable for Epilepsy:

Hypersynchronization and high voltage slow waves appearing unilaterally or bilaterally on basal record and/or on activation procedures viz. overbreathing and photic stimulation.

Group-C: Borderline for Epilepsy:

Appearance of runs and moderate voltage slow wave activity on basal record or on activation without synchronization. This group also includes some records showing diffuse slowing.

Group- D: No Abnormality seen.

RESULTS

TABLE I
Age Distribution.

Age	Number	%
<6 months	3	3.8 %
6 months - 3 years	65	81.2 %
3–5 years	10	12.5 %
>5 years	2	2.5 %
	80	100

Table I shows the age distribution in relation to occurrence of the first febrile seizure. Majority of the children (8 1.2%) were between 6 months to 3 years of age. There was slight male predominance (52.5%).

TABLE II
Pattern of Febrile Seizures.

History	Number	%	Male (34)	Female (46)
Ist febrile seizure	50	62.5%	21	29
Recurrent febrile seizure	30	37.5%	13	17

Table II shows that 62.5% of the children presented with first episode and 37.5% had recurrent (2-4) febrile seizures. Both were more frequent in females.

TABLE III
Relationship of Age with Seizures.

Age at first seizure	Recurrence Number	%
6 months - 2 years	26	86.6 %
2–5 years	4	15.4 %
5 years.	0	0

Table III shows the relationship of age at first febrile fit to the frequency of recurrence. It shows that the younger the age. at which first febrile convulsion occurred the greater is the likelihood of recurrence.

Using E.E.G. findings and family history of epilepsy as the basis of exclusion, it was found that of 80 children studied and clinically labelled as having benign febrile seizure, 21 (26.2%) were “potential epileptics”, while 59(73.8%) had benign convulsive fits. Of 21 “potential Epileptics”, 8 had family

history of epilepsy. E.E.G. abnormalities were detected either in the patients (6), their parents (2) or siblings (5).

DISCUSSION

Febrile Convulsions arc more frequent in males. The more rapid rate of cerebral maturation and myelination may be the cause of the rapid decline in incidence of febrile seizures after the age of 2 years in females[5,6]

The age distribution in our study is similar to others with the peak incidence of febrile seizures between 6 months to 2 years[5]. Within this age group, the children also tend to have more chances of recurrence.. Children in this study who had their first febrile seizure below the age of 2 years the incidence of recurrence was 86.4%. Recurrence seem to be commoner in females.

Amongst children with clinically benign febrile convulsions, a history of fits was present in 22 families. Out of these 8 (10%) were epileptic fits and 14 (17.5%) simple febrile convulsions. Prevalence of epilepsy (10-40%) and of febrile seizures (8-10%) was higher among the close relatives of patients with febrile convulsions.[2,3] Preliminary studies done on genetics of febrile convulsions suggested that autosomal dominant inheritance with variable penetrance appears to be the most common pattern; but there is evidence that autosomal recessive or polygenetic mechanisms may also be involved[2,3].

E.E.G. showed epileptic pattern in 7.5% children with febrile convulsion in this series and 10% in patients reported by Lennox2.

This study was done to investigate the precision of diagnosis of benign febrile convulsions under strict criteria and dissuade the use of loosely applied term “febrile convulsions” covering all sorts of fits with fever, since the management and outcome differs dramatically depending on the definition.

It is generally agreed that the occurrence of febrile seizures in children does not necessarily presage the later development of epilepsy, but the likelihood of this eventuality is great if the seizures are complex (focal and/or prolonged), the interictal E.E.G. findings are suggestive of epilepsy and if there is a family history of epilepsy (clinical or E.E.G.).

In our study of the 80 children with clinically “benign” febrile convulsion, 21(26.3%) were labelled as potential epileptics on the basis of family history and E.E.G. findings suggestive of epilepsy. However, long-term follow-up is needed to determine the actual incidence of epilepsy in this “potentially epileptic” group.

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