

ASSESSMENT OF CLINICO-ETIOLOGICAL PROFILE IN CHILDREN WITH ATYPICAL FEBRILE SEIZURES AT A TERTIARY CARE HOSPITAL

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Received : 13/12/2022
Received in revised form : 08/01/2023
Accepted : 22/01/2023

Keywords:
Atypical Febrile Seizures, Meningitis.

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DOI: 10.47009/jamp.2023.5.1.152

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2023; 5 (1); 734-736



Abstract

Background: Febrile seizures are the most common neurological disorder in pediatric population affecting 2-5% of children. There are two types: simple febrile seizures and complex febrile seizures. Data regarding clinical profile of atypical febrile seizures from our country is scant. This study was conducted to enlighten upon the clinical profile of children presenting with atypical febrile seizures. **Materials and Methods:** This prospective observational study was done over a period of 12 months in the department of Pediatrics in a tertiary care centre. All children between 6 months to 5 years of age presenting to emergency department with atypical febrile seizures were included in the study. The demographic characteristics, clinical history, examination findings and results of investigations done whenever clinically indicated were recorded. **Result:** Total of 80 babies were studied. 56 (70%) were males and 24 were females (30%). Duration of more than 15 minutes was found in 9 children (11.25%), focal seizures in 4 (5%) children, more than 1 seizure in 79 (98.79%) children, family history of epilepsy in 7 (8.75%) children and meningeal signs in 4 (5%) children. Age at the time of 1st episode was less than 1 year in 26 (32.5%), duration of fever less than 24 hours in 52 (65%), fever between 38-39 degree Celsius in 37 (46.25%), family history of febrile seizures in 7 (8.75%), male gender in 56 (70%), and low sodium in 15 (18.75%). Meningitis was found in 17 (21.25%) children. Neuroimaging was not done in any child. **Conclusion:** The prevalence of febrile seizures was higher in males. There should be high index of suspicion for meningitis in children with complex febrile seizures specially when there are other clinical signs and symptoms suggestive of meningitis. Neuroimaging is generally not required unless there is suspicion of space occupying lesion or risk of herniation.

INTRODUCTION

A febrile seizure is defined as a seizure in association with a febrile illness in the absence of a central nervous system infection or acute electrolyte imbalance in children.^[1] Febrile seizures are the most common neurological disorder in pediatric population affecting 2-5% of children.^[2] There are two types: simple febrile seizures and complex febrile seizures. Simple febrile seizures involve an otherwise healthy child who has at most one tonic-clonic seizure lasting less than 15 minutes in a 24-hour period. Complex febrile seizures have focal symptoms, last longer than 15 minutes, or occur more than once within 24 hours. Although there are many studies which have studied clinical profile of febrile seizures, but most of them focus on simple

febrile seizures. Data regarding clinical profile of atypical febrile seizures from our country is scant and very few studies in this regard have been undertaken.^[3-5] This study was conducted to enlighten upon the clinical profile of children presenting with atypical febrile seizures.

MATERIALS AND METHODS

This prospective observational study was done over a period of 12 months in the department of Pediatrics in a tertiary care centre. All children between 6 months to 5 years of age presenting to emergency department with atypical febrile seizures were included in the study. Ethical clearance was taken from institute ethics committee. The demographic characteristics such as sex, age, body

temperature, duration of fever prior to seizure, convulsion time, seizure frequency, type of seizures, family history of seizures, history of previous seizures and developmental delay were documented for each patient. Examination findings including head circumference, neurocutaneous markers and central nervous system examination were documented. Results of investigations done whenever clinically indicated like serum electrolytes, blood sugar, serum calcium, blood culture, urine culture, CSF analysis, neuroimaging and EEG were recorded.

Inclusion Criteria

All patients admitted as a case of atypical febrile seizure during study period.

Exclusion Criteria

- Patients with history of head injury.
- Patients with history of prior epilepsy already taking antiepileptic medications
- Patients with history of neonatal seizures.

Data was entered in Microsoft Excel and analysed. Descriptive statistics which included frequency and percentage were derived and presented in tables.

RESULTS

Total of 80 babies were studied. 56 (70%) were males and 24 were females (30%). [Table 1] Age at the time of presentation was less than 1 year in 20 (25%) children and more than 1 year in 60 (75%) children. [Table 2] Duration of more than 15 minutes was found in 9 children (11.25%), focal seizures in 4 (5%) children, more than 1 seizure in 79 (98.79%) children, family history of epilepsy in 7 (8.75%) children, microcephaly in 6 (7.5%) children and meningeal signs in 4 (5%) children. [Table 3] Various risk factors for recurrence of febrile seizures were studied. Age at the time of 1st episode was less than 1 year in 26 (32.5%), duration of fever less than 24 hours in 52 (65%), fever between 38-39 degree Celsius in 37 (46.25%), family history of febrile seizures in 7 (8.75%), male gender in 56 (70%), and low sodium in 15 (18.75%). [Table 4] Meningitis was found in 17 (21.25%) children. [Table 5] Neuroimaging was not done in any child.

Table 1: Distribution According to Gender

Gender	Number	Percentage
Male	56	70
Female	24	30

Table 2: Distribution According to Age

Age	Number	Percentage
<1 year	20	25%
> 1year	60	75%

Table 3: Clinical Features

Atypical feature	Number	Percentage
Duration >15 minutes	9	11.25%
Focal seizure	4	5%
>1 seizure	79	98.79%
Family history of epilepsy	7	8.75%
Developmental delay	0	0%
Abnormal neurological examination	0	0%
Meningeal signs	4	5%
Microcephaly	6	7.50%

Table 4: Risk Factors for Recurrence

Risk factors for recurrence of febrile seizure	number	percentage
Age <1 year at 1st episode	26	32.50%
Duration of fever <24 hours	52	65%
Fever 38-39 degree C	37	46.25%
Family history of febrile seizures	7	8.75
Complex febrile seizure	80	100%
Male	56	70%
Low sodium	15	18.75%

Table 5: Meningitis

Meningitis	Number	Percentage
Present	17	21.25%
Absent	63	78.75%

DISCUSSION

70% of children with atypical febrile seizures in our study were male. This was similar to many studies in the past.^[6-10] Mahyar et al. in 2010 concluded that

gender was an important factor in febrile seizure. In his study, 66% of the infants with febrile seizure were boys.^[11] Ashrafzade et al. also found that febrile seizure was more common in boys than girls.^[12] 32.5% children had 1st episode of febrile

seizure in 1st year of life in our study. This was similar to study done by Hassanpour et al who found that 35.2% children had onset of febrile seizure in 1st year of life.^[13] Family history of febrile seizures was found in only 8.75% children. This was lower than similar studies done in past.^[14] Studies have shown that there is higher incidence of recurrent febrile seizures in children with hyponatremia. Hyponatremia was reported in 18.75% of children with complex febrile seizures in our study. A similar study found hyponatremia in 37.5% of children with febrile seizures.^[15] 65 % children in our study had seizure within 24 hour of fever onset which is comparable to the established literature which states that majority of febrile seizures occur during first two years of life.

A total of 17(21.25%) children were treated by clinician as meningitis in our study. Out of these, only one was blood culture positive. All others were diagnosed with raised proteins or CSF pleocytosis. Green et al,^[16] reported that 23 % of children were treated as bacterial meningitis. But seizure did not occur as the only clinical indicator of meningitis in patients who had bacterial meningitis. All of their children had obvious clinical signs and symptoms of meningitis. Various other authors have reported incidence of meningitis in febrile seizures between 2% to 5%.^[17-20] Computed tomography is only required if one is considering obtaining a lumbar puncture or if a suspicion for either a space-occupying lesion or herniation exists. However, the chance of discovering a lesion that necessitates an alternative treatment with neuroimaging is so low that such studies are often unnecessary in majority of children with complex febrile seizures.^[21] Neuroimaging was not required in any of our children.

CONCLUSION

The prevalence of febrile seizures was higher in males. Number of children treated as meningitis was higher in our study as compared to the previous literature. Hence there should be high index of suspicion for meningitis in children with complex febrile seizures specially when there are other clinical signs and symptoms suggestive of meningitis. Neuroimaging is generally not required unless there is suspicion of space occupying lesion or risk of herniation.

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