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Original Research Article

A Hospital-Based Study to Investigate the Clinical Spectrum and Outcome of Febrile Seizures in Children

Monika[1], Manoj Kumar Ram[2], B. K. Singh[3], Alka Singh[4]

[1]Senior Resident, Department of Pediatrics, Nalanda Medical College and Hospital, Patna, Bihar, India

[2]Assistant Professor, Department of Pediatrics, Nalanda Medical College and Hospital, Patna, Bihar, India

[3]Professor and HOD, Department of Pediatrics, Nalanda Medical College and Hospital, Patna, Bihar, India

[4]Professor, Department of Pediatrics, Nalanda Medical College and Hospital, Patna, Bihar, India

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Corresponding Author: Dr. Manoj Kumar Ram
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Abstract

Aim: The aim of the present study was to investigate the prevalence of febrile seizures in children in DMCH.

Methods: The present study was conducted at Pediatric Department of Nalanda Medical College and Hospital, Patna, Bihar, India. Total 200 children were studied for various demographic characteristics like age and sex, type of febrile seizure, risk factors of febrile seizures like family history of febrile seizure, associated infection and length of hospital stay.

Results: Of the 200 children 110 (55%) were boys and 90 (45%) were girls. 36 (18%) were in below 1 years of age, 60 (30%) were in 1-2 years of age, 70 (35%) were in 2- 3 years of age and 34 (17%) were in 3-5 years of age. Mean age of occurrence was 2.2 years (±1.5 years). In this study, 80% (160) of the patients had simple and 20% (40) had the complex form of febrile seizure. In our study, 60% (120) of affected children had positive family history of febrile seizure. Acute gastroenteritis (AGE) (24%) followed by upper respiratory tract infection (URTI) (20%) was the most common co- morbidity. 48% children were hospitalized for 1-3 days, 32% for 4-7 days and 20% for more than 7 days.

Conclusion: Most of the children had a positive family history and the most common causative factor was acute gastroenteritis - morbidities/risk factors in the form of URTI, LRTI, AGE etc. are associated with febrile convulsion and these diseases can be managed effectively thereby reducing the occurrence of febrile convulsion.

Keywords: Seizure, Fever, Prevalence, Children

Introduction

Febrile seizure (FS) is the most common neurological disorder observed in the pediatric age group. It has been reported that one in every 25 children in the population will experience at least one FS during their childhood. [1] The International League against Epilepsy (ILAE) has defined FS as seizure events in infancy or childhood are featured with temperatures over 38°C without any evidence of acute electrolyte imbalances in CNS infection or history. A child with FS often loses consciousness, shakes, and moves limbs on both sides of the body. Most FSs occur during the first day of a child's fever. [2]

The direct cause of FS is unknown, but the most important associated factors are fever, epilepsy, hypoglycemia, hypocalcaemia, head injury, poisoning and drug overuse, respiratory infection, or gastroenteritis. [3-5] The association between seizure and bacterial infection is conventional. [6,7] Although, FS may cause great fear and concern for parents, it usually does not produce lasting effects. [8] The types of FS are also important. Children who have focal or lateralized FS, prolonged (particularly lasting more than an hour) or seizures that affect only a part of the body, or that recur within 24 hours, are more hazardous. [9]

Diagnosis of this condition is essentially clinical and based on its description provided by parents. However, taking the detailed history of the patient including symptoms in the child, history of recent consumption of antibiotics or drugs given by the parents, and recent history of vaccination are helpful in determining the cause of fever, and

examination for upper respiratory tract infections, which are the most common underlying cause of FS, must certainly be considered. However, the cause of fever in about one-third of these patients cannot be determined. [10] Studies on children with FS have reported significantly lower plasma ferritin levels.[11]

The aim of the present study was to investigate the prevalence of febrile seizures in children in NMCH.

Materials and Methods

The present study was conducted at Pediatric Department of Nalanda Medical College and Hospital, Patna, Bihar, India for 6 months. Total 200 children were studied for various demographic characteristics like age and sex, type of febrile seizure, risk factors of febrile seizures like family history of febrile seizure, associated infection and length of hospital stay. All children aged between 6 months to 5 years who were diagnosed as febrile seizures were included in the study. Children who had structural anomalies and who were diagnosed with seizures other than febrile seizures were excluded.

Inclusion Criteria

All patients of age group between 6 months to 5 year and diagnosed as febrile seizure were included in the study.

Exclusion Criteria

All other seizure disorder patients excluding febrile seizure were excluded from study. Also, patient age less than 6 months and more than 5 year were excluded from study. Patients who had structural anomalies of brain were excluded.

Study was started after obtaining institutional ethics committee clearance. The data was entered in excel sheet of Microsoft Excel 2013 version and analyzed by SPSS version 2.0.

Results

Table 1: Demographic and clinical details of children

Gender		Male	Female	Total	P value
		N	N	N (%)	
Age (in years)	<1	20	16	36 (18)	
	1-2	32	28	60 (30)	
	2-3	38	32	70 (35)	0.7
	3-4	10	6	16 (8)	
	4-5	10	8	18 (9)	
	Total	110	90	200 (100)	
Family history	Yes	70	50	120 (60)	
	No	44	36	80 (40)	0.75
	Total	110	90	200 (100)	
Types of febrile seizure	Simple	90	70	160 (80)	
	Complex	24	16	40 (20)	0.64
	Total	110	90	200 (100)	
Infection	URTI	24	16	40 (20)	
	LRTI	20	20	40 (20)	
	AGE Others	22 22	26 14	48 (24) 36 (18)	0.7
	No infection	24	12	36 (18)	
	Total	110	90	200 (100)	
Hospital stay	1-3	48	48	96 (48)	
	4-7 >7	40 24	24 16	64 (32) 40 (20)	0.32
	Total	110	90	200 (100)	

Of the 200 children 110 (55%) were boys and 90 (45%) were girls. 36 (18%) were in below 1 years of age, 60 (30%) were in 1-2 years of age, 70 (35%) were in 2- 3 years of age and 34 (17%) were in 3-5 years of age. Mean age of occurrence was 2.2 years (±1.5 years). In this study, 80% (160) of the patients had simple and 20% (40) had the complex form of febrile seizure. In our study, 60% (120) of affected children had positive family history of febrile seizure. Acute gastroenteritis (AGE) (24%) followed by upper respiratory tract infection (URTI) (20%) was the most common co-morbidity. 48% children were hospitalized for 1-3 days, 32% for 4-7 days and 20% for more than 7 days.

Discussion

Febrile convulsion is one of the commonest seizure disorders in children. [12] It's prevalence in children is at least 2 to 4 percent once before five

years of age. [13] In other studies it affects as many as 24% of children before 5 years of age. [14] Some studies report that one in every 25 children in the population will experience at least one episode during their childhood. [15] The simple type is characterized by an episode of generalized tonic-clonic seizure lasting less than 15 min in 24 hours while in the complex type the convulsions are multiple, lasting more than 15 min. Majority of them are of simple type (70%-75%). [16] History of febrile seizures in first degree relative is a major risk factor for the recurrence and in such children recurrence risk is increased up to 80%. [17]

Of the 200 children 110 (55%) were boys and 90 (45%) were girls. 36 (18%) were in below 1 years of age, 60 (30%) were in 1-2 years of age, 70 (35%) were in 2- 3 years of age and 34 (17%) were in 3-5 years of age. Mean age of occurrence was 2.2 years (±1.5 years).. In a study conducted by Mahyar et al in 2010 found that gender is an important factor in febrile seizure; in his study, 66% of the infants with febrile seizure were boys. In another study conducted by Khanian et al in 2010 in his study found a slight predominance of febrile seizure in males. [18,19] In this study, 80% (160) of the patients had simple and 20% (40) had the complex form of febrile seizure. In our study, 60% (120) of affected children had positive family history of febrile seizure. In a study by Hosseini Nasab et al [20] on 460 infants with febrile seizure, simple and complex forms of febrile seizure were 76.4% and 23.6%, respectively. In our study, 60% (60) of affected children had positive family history of febrile seizure. Various studies performed in Boushehr et al (59%), Kashan et al (55%) and Kerman et al (50%), positive family history was identified as most remarkable risk factor in this child. [21-22] Acute gastroenteritis (AGE) (24%) followed by upper respiratory tract infection (URTI) (20%) was the most common co-morbidity. 48% children were hospitalized for 1-3 days, 32% for 4-7 days and 20% for more than 7 days.

Conclusion

Most of the children had a positive family history and the most common causative factor was acute gastroenteritis - morbidities/risk factors in the form of URTI, LRTI, AGE etc. are associated with febrile convulsion and these diseases can be managed effectively thereby reducing the occurrence of febrile convulsion.

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