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**Original Research Article**

# A retrospective study of febrile seizures among children admitted in a tertiary care hospital

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## ABSTRACT

**Background:** Febrile convulsion is one of the commonest seizure disorders in children. Prevention of febrile convulsions is therefore desirable, and is of particular relevance in children with factors carrying a high risk of recurrence. Aim and objectives were to study the demographic profile and some risk factors of febrile seizures among children.
**Methods:** Retrospective study was conducted at Pediatric department of Yenepoya Medical College, Mangalore. Considering inclusion & exclusion criteria all children in the 6 months to 5-year age who were diagnosed as having febrile convulsion admitted during January 2018 to October 2019 were included in the study.
**Results:** Total out of the 96 children 53 (55.2%) were boys and 43 (44.7%) were girls. 61% children were in the 1-3-year age group. Mean age of occurrence was 2.2 years (±1.5 years). In this study, 81.25% (78) of the patients had simple and 18.75% (18) had the complex form of febrile seizure. In our study, 61.4% (59) of affected children had positive family history of febrile seizure. Acute gastroenteritis (AGE) (22.9%) followed by upper respiratory tract infection (URTI) and lower respiratory tract infection (LRTI) (20.8%) was the most common co-morbidity. 47.9% children were hospitalized for 1-3 days.
**Conclusions:** Most of the children had a positive family history and the most common causative factor was Age, URTI, LRTI etc. are associated with febrile convulsion and these diseases can be managed effectively thereby reducing the occurrence of febrile convulsion.

**Keywords:** Acute gastroenteritis, Upper respiratory tract infection, Lower respiratory tract infection

## INTRODUCTION

Febrile convulsion is one of the commonest seizure disorders in children.[1] It's prevalence in children is at least 2 to 4 percent once before five years of age.[2] In other studies it affects as many as 24% of children before 5 years of age.[3]

Some studies report that one in every 25 children in the population will experience at least one episode during their childhood.[4]

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%).[5]

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%.[6]

The overall recurrence rate for second episode after first episode is almost 30%. Predictors of recurrence are

complex seizures, positive family history, onset at less than 12 months, and the presence of associated complex features of febrile convulsions.[7]

Although lot of literature are available in past 25 years which shows a good prognosis in most of cases of febrile seizures, but there are some reports which highlighted the risk of epilepsy (9%) as its complication. So, we conducted this study to know the demographic profile and some risk factors of febrile seizures among children.

### *Aim and objectives*

Aim and objectives were to study the demographic profile and risk factors of febrile seizures among children.

## METHODS

A retrospective observational study was conducted at pediatric department of Yenepoya Medical College, Mangalore. All children aged between 6 months to 5 years who were diagnosed as febrile seizures from January 2018 to October 2019 were included in the study. Children who had structural anomalies and who were diagnosed with seizures other than febrile seizures were excluded. Total 96 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.

### *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

Of the 96 children 53 (55.3%) were boys and 43 (44.7%) were girls. 18 (18.75%) were in below 1 years of age, 28 (29.2%) were in 1-2 years of age, 33 (34.37%) were in 2-3 years of age and 17 (17.7%) were in 4-5 years of age.

**Table 1: Demographic and clinical details of children.**

| Gender | | Male | Female | Total | P value |
|---|---|---|---|---|---|
| | | N (%) | N (%) | N (%) | |
| **Age (in years)** | <1 | 10 (55.5) | 8 (44.5) | 18 (18.75) | 0.3 |
| | 1-2 | 15 (53.5) | 13 (46.5) | 28 (29.2) | |
| | 2-3 | 18 (54.5) | 15 (45.5) | 33 (34.37) | |
| | 3-4 | 5 (62.5) | 3 (37.5) | 8 (8.33) | |
| | 4-5 | 5 (55.5) | 4 (45.5) | 9 (9.33) | |
| | Total | 53 (55.3) | 43 (44.7) | 96 (100) | |
| **Family history** | Yes | 33 (55.9) | 26 (44.1) | 59 (61.4) | 0.90 |
| | No | 20 (54.05) | 17 (45.95) | 37 (38.6) | |
| | Toatal | 53 (55.3) | 43 (44.7) | 96 (100) | |
| **Types of febrile seizure** | Simple | 42 (53.8) | 36 (46.2) | 78 (81.25) | 0.80 |
| | Complex | 11 (61.1) | 7 (38.9) | 18 (18.75) | |
| | Total | 53 (55.3) | 43 (44.7) | 96 (100) | |
| **Infection** | URTI | 12 (60) | 8 (40) | 20 (20.8) | 0.3 |
| | LRTI | 10 (50) | 10 (50) | 20 (20.8) | |
| | AGE | 10 (45.4) | 12 (55.6) | 22 (22.9) | |
| | Others | 9 (52.9) | 6 (47.1) | 17 (17.7) | |
| | No infection | 12 (63.1) | 7 (36.9) | 19 (19.7) | |
| | Total | 53 (55.3) | 43 (44.7) | 96 (100) | |
| **Hospital stay** | 1-3 | 23 (50) | 23 (50) | 46 (47.9) | 0.27 |
| | 4-7 | 18 (60) | 12 (40) | 30 (31.25) | |
| | >7 | 12 (60) | 8 (40) | 20 (14.85) | |
| | Total | 53 (55.3) | 43 (44.7) | 96 (100) | |

Mean age of occurrence was 2.2 years (±1.5 years). In this study, 81.25% (78) of the patients had simple and 18.75% (18) had the complex form of febrile seizure. In our study, 61.4% (59) of affected children had positive family history of febrile seizure. Acute gastroenteritis (AGE) (22.9%) followed by upper respiratory tract infection (URTI) (20.8%) was the most common co-morbidity. 47.9% children were hospitalized for 1-3 days, 31.25% for 4-7 days and 14.85% for more than 7 days. Study results did not show significant difference between two genders for simple seizures, but complex seizures were more common in males (61.1%).

## DISCUSSION

Febrile seizure is the most common seizure in childhood. Occurring in 2-7% of the children aged 6 months to 6 years.[9] In this study, the mean age of the patients was 2.2years±1.5 years, but in some studies, 23.68 months was the approximate estimated age.[10]

In this study, 53 cases with febrile seizure were boys (55.3%) and the remainder 43 was girls (44.7%). A definite male predominance was detected for febrile seizure in our study. 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.[11,12]

In a study by Hosseini Nasab et al on 460 infants with febrile seizure, simple and complex forms of febrile seizure were 76.4% and 23.6%, respectively.[13] In our study, 81.25% of the patients had simple and 18.75% had the complex form 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.[12-14] In this study, 61.4% (59/96) of affected children had positive family history of febrile seizure

In the present study, acute gastroenteritis was the main reason of febrile seizure in AGE (22.9%) of the cases and both URTI and LRTI (20.8%) were the second cause of fever. URTI was the most important cause of fever in other studies conducted by Kashan et al, Karman et al.[13,14]

## 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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