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Febrile Convulsions in Children, Arar, Northern Saudi Arabia

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ABSTRACT

Background: Febrile seizure is one of the most common types of seizure in children aged between 5 months and 5 years and accounts for 30% of all childhood seizures, but it is generally considered benign. The objective of the study was to determine the percentage of febrile seizures in Pediatrics Emergency, Maternity and Children's Hospital of Arar City and to study some of the clinical and demographic characteristics of those children. **Methods:** This was a cross-sectional study conducted during 6 months period, from 1 January to 30 July 2017. All admitted cases (0–12 years) presenting with seizures, both unprovoked and symptomatic (acute and remote), were enrolled. All children 0 to 12 years of age who were hospitalized at the emergency department with seizures were included in this study. Data was recorded in predesigned proforma including age, sex, nature of seizure, fever, history of head trauma, epilepsy, infectious diseases, previous history and family history of seizures and the final diagnosis was fulfilled. **Results:** Among the studied children presented to the emergency department with attack of convulsions 72.2% of cases had febrile convulsions and 27.8% of cases had convulsions due to other causes. The majority (49.1%) of cases were 1-3 years old. Most (87.7%) of the cases of febrile convulsions had generalized convulsions and in 84.2% it was the first attack but there was a history of repeated attacks in 15.8%. Family history of febrile convulsions was found in 15.8% of the cases.

Conclusion: Febrile convulsions was the main etiology of convulsions in children admitted to emergency department of Maternity and Children's Hospital in Arar city. We suggested other researchers to follow the patients to show the recurrence of seizure and the prognosis in them, physical and neurological examinations and good history taking may provide important information for primary emergency physicians when evaluating children with attack of febrile convulsions.

Keywords: Febrile convulsions; children; Emergency department of Maternity and Children's Hospital; Arar city.

INTRODUCTION

Febrile convulsions are the most common type of seizure in children, but it is generally considered benign [1]. These convulsions are associated with a rapidly rising temperature and usually develop when the core temperature reaches 39oC or higher. As they may indicate a serious underlying acute infection, such as sepsis or bacterial meningitis, child must be examined and investigated to see if there is associated cause for the fever [2]. In practice they are rarely seen before the age of 9 months and after 5 years old. It usually occurs between the age of 3 months and 5 years [2]. Febrile convulsions occur in 2- 4% of young children in the United States, South America, and western Europe. It occur more frequently in Asian countries. They are slightly more common in males than females. The mean age is 17-23 months [1]. The typical febrile convulsion is a generalized tonic clonic seizure lasting between a few seconds and 15 minutes, followed by a period of drowsiness. Febrile seizures tend to occur in families, although the exact mode of inheritance is unknown, children who have febrile seizure more often tend to have a history of febrile convulsions in close relatives [3]. The exact role of fever in the etiology of febrile convulsion is not clear but there is a positive family history in 7-31% of cases [1]. The definitive degree of fever is uncertain. At the time of convulsions, 75% of patients had a temperature over 39 ^{0}C. Viruses are the most common cause of illnesses in children admitted to the Hospital with a first febrile seizure [4]. It is very rare that death or permanent motor disability will occur due to febrile seizure although 0.4% experienced a transient focal weakness or Todd's paralysis following the seizure [5]. Children with febrile seizures are at no greater risk of intellectual impairments than their peers [6]. Fifty

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percent of those children whose first seizure occurs under the age of one year will have at least one recurrence, whereas only 20 percent of those who have their first febrile seizure after the age of 3 years will have a recurrence [7].

In **Alenezi O *et al.*** febrile seizure was the most common (72.2%) etiology of seizure in all age groups. Febrile seizures was 66.7% in females and 75.0% in males [8].

In Iran, **Taherian *et al.*** reported that febrile seizure was the most common etiology of seizure in all age groups. No sex difference was observed in the prevalence of etiology of seizure between males and females. Majority of the patients in this study were male (59%) [9].

The objective of the study was to determine the percentage of febrile seizures in Pediatrics Emergency, Maternity and Children's Hospital of Arar City and to study some of the clinical and demographic characteristics of those children.

PARTICIPANTS AND METHODS

This was a cross-sectional study conducted at the Department of Pediatrics Emergency, Maternity and Children's Hospital of Arar City during 6 months from 1 January to 30 July 2017. All admitted cases (0–12 years) presenting with seizures, both unprovoked and symptomatic (acute and remote), were enrolled.

All children 0 to 12 years of age who were hospitalized at the emergency department with seizures were included in this study.

Data was recorded in predesigned proforma including age, sex, nature of seizure, fever, history of head trauma, epilepsy, infectious diseases, previous history and family history of seizures and the final diagnosis was fulfilled.

Ethical considerations

Parents of the included children informed that participation is completely voluntary. Written consent obtained from each participant before being subjective with them. No names recorded on the questionnaires. All questionnaires had kept safe.

Statistical analysis

Descriptive statistics was used for the analysis. The data was analyzed using SPSS V.16.0 (SPSS Inc; Chicago, IL, USA).

RESULTS

Figure 1 illustrates the percentage of febrile convulsions among the studied children presented to the emergency department with attack of convulsions. It is clear from the figure that 72.2% of the cases had febrile convulsions and 27.8% of the cases had convulsions due to other causes.

Table 1 illustrates age, sex, type of convulsions, family history and previous history of febrile convulsions in the studied children.

A total of 144 child presented to the emergency department with attack of febrile convulsions were included in this study. The majority (49.1%) of cases were 1-3 years old, 22.8% were 4-6 years and only 8.8% were more than 6 years. Most (68.4%) of febrile convulsions cases were males. Most (87.7%) of the cases of febrile convulsions had generalized convulsions and in 84.2% it was the first attack but there was a history of repeated attacks in 15.8%. Family history of febrile convulsions was found in 15.8% of the cases

Figure (1): Percentage of febrile convulsions among the studied children, Arar, 2017

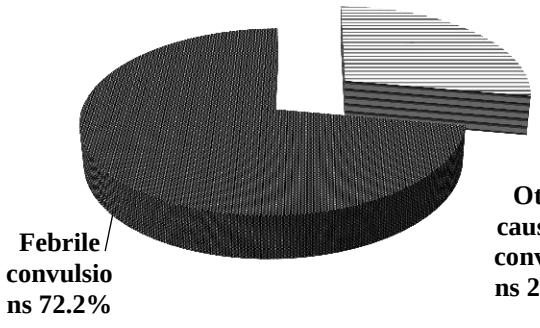

Table 1: Age, sex, type of convulsions, family history and previous history of febrile convulsions in the studied children, Arar, 2017 (N=144)

Age in years	Frequency (No. of cases)	Percent (%)
<1	22	19.3
1-3	56	49.1
4-6	26	22.8
7-12	10	8.8
Sex of child		
Male	78	68.4
Female	36	31.6
Type of febrile convulsions		
Generalized	100	87.7
Focal	14	12.3
Past history of febrile convulsions		
Yes	18	15.8
No (it is the first time)	96	84.2
Family history of febrile convulsions		
Yes	18	15.8
No	96	84.2
Investigated and managed in the hospital		
Yes	84	73.7
No	30	26.3

DISCUSSION

Febrile seizure is one of the most common types of seizure in children aged between 5 months and 5 years and accounts for 30% of all childhood seizures [10]. Peak incidence of febrile seizures is at the age of 16–18 months [11]. This was a hospital based cross-sectional study of children admitted with acute attack of seizure in the Emergency Department of Maternity and Children's Hospital in Arar city, Northern Saudi Arabia, during the period from 1 January to 30 July 2017. The objective of the study was to determine the percentage of febrile seizures in Pediatrics Emergency, Maternity and Children's Hospital of Arar City and to study some of the clinical and demographic characteristics of those children. Our results showed that febrile seizure (72.2%) was the main etiology of seizure in patients admitted to emergency department of Maternity and Children's Hospital in Arar city, Northern Saudi Arabia. Our results are consistent with Iranian study [9] which showed that febrile seizure (82%) was the main etiology of seizure in patients admitted to emergency department. In Tanzania, overall, 160 children between 2 months and 7 years with a prevalence rate of 2.05% met the criteria for febrile seizures.

In our study, there was a sex difference between the prevalence of febrile seizure in males and females. Majority of the cases in this study were male (68.4%) . This is in agreement with a study done by **Taherian *et al.*** where they reported that febrile seizure was the most common etiology of seizure but there was no sex difference observed between the prevalence of febrile seizure in males and females [9]. Also, our results are in agreement with a study done by **Al Sulaiman *et al.*** where they had 153 males out of 263 children [12].

In the current study, it is notable that most of the cases of febrile convulsions were between 1-3 years old (49.1%), 22.8% 4-6 years old and 19.3% were <1 year old, respectively.

These results are in agreement with the findings of a previous studies which showed a low prevalence of febrile seizure in children aged >6 years old [13].This result is related to the high prevalence of patients with febrile seizure in these age groups. Febrile seizures have been reported as one of the most common cause of seizure attack in children [14].

In the present study, generalized seizure was the most common type of seizure which accounted 87.7%. Also in the Iranian by the studies of **Alenezi *et al.* [8], Taherian *et al.* [9]** and by **Adhikari *et al.* [14] where they** revealed that majority of seizures was a generalized one. While, in the community based study by **Al Rajeh *et al.*** the majority of seizures were focal in nature **[15].** This can be explained as most of the patients of febrile seizure were mainly generalized in nature **[16].**

In our study, only 15.8% of the patients had a family history of seizure. This supports that no family history of seizure is not in exclusion of seizure or diagnosing its etiology. Consistently, previous studies reported that family history of seizures was noted in only 8% and 8.2% of children presented to pediatrics emergency with new onset seizures **[8,9]**

CONCLUSION AND RECOMMENDATIONS

Our results showed that febrile convulsions was the main etiology of convulsions in patients admitted to emergency department of Maternity and Children's Hospital in Arar city, Northern Saudi Arabia. We suggested other researchers to follow the patients to show the recurrence of seizure and the prognosis in them, physical and neurological examinations and good history taking may provide important information for primary emergency physicians when evaluating children with attack of febrile convulsions.

LIMITATIONS OF THE STUDY

The details of causes of febrile convulsion could not be specified due lack of investigations. Large wide scale study is needed to find the details of the causes.

Conflict of interest: No

Funding institution: No

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