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"A Prospective Study on Assessment of Risk Factors and Effect of Counselling In Parents of Children with Febrile Seizure"

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ABSTRACT: A febrile seizure, also known as a febrile fit or febrile convulsion, is a seizure associated with a high body temperature but without any serious underlying health issue.This study aimed at identifying the possible risk factors of Febrile Seizure and assessing the knowledge, attitude and practice of parents having children with FS and the impact of parental counselling on KAP. The data were collected and recorded in specially designed pro forma. The impact of patient counselling on quality of life was assessed using a knowledge, attitude and practice questionnaire. Information was provided through patient information leaflet. A total of 134 Patients with febrile seizure are selected for the study. Based on this study ,the majority of age group belongs to less than 3years(87%) with a positive family history(85%).The majority of patients had a peak body temperature of above 101.6°F(53.7%) , comorbidities such as viral fever(66.4%) , upper respiratory tract infections(34%) ,mother's condition during pregnancy such as cesarean(46%),antenatal–natal complications such as difficult labour (34%) are risk factors for occurrence of Febrile seizure episode. The parental counselling is found to be effective in reducing their anxiety, improving parental knowledge and this knowledge empowers parents. Well informed parents manage febrile convulsions better.

Key words: Febrile seizure [FS], KAP questionnaire, Patient information leaflet.

I. INTRODUCTION

A febrile seizure , also known as a febrile fit or febrile convulsion , is a seizure associated with a high body temperature but without any serious underlying health issue. FS constitute the most common seizure disorder in childhood. They occur in neurologically healthy infants and children between 6 months and 5 years of age , associated with fever > 38°C , without intracranial infection and no history of prior afebrile seizures. Seizures due to pyogenic meningitis , hypernatremic dehydration , or other metabolic disorders are not included. FS are provoked seizures and thus do not signify epilepsy. Infections usually responsible for fever in children with FS include otitis media , upper respiratory and urinary tract and gastrointestinal infections. Most febrile seizures are less than five minutes in duration and the child is completely back to normal within 60 minutes of the event.

During a seizure , the brain , which is normally transmitting electrical impulses at a fairly regular rhythm , begins misfiring because of the overheating and causes involuntary muscular responses termed a seizure , convulsion , fit or 'falling out spell'. The first sign may be stiffening of the entire body. Children may have rhythmic beating of a single hand / foot / any combination of the hands and feet. The eyes may roll back and the head may jerk. Urine and faeces may pass involuntarily.

More than 90% of FS are generalised seizures , last less than 5 min , and occur early in the illness causing the fever. FS occurs in 2-3% of children. Acute respiratory illness are most commonly associated with FS. Gastroenteritis , especially when caused by Shigellaa or Campylobacter , and UTI are less common causes. Roseola infantum is a rare but classic cause. One study implicated viral causes in 86% of cases. Immunization may be a cause. It is very important , especially in younger children to exclude CNS infection as a source , these children are not classified as having a FS.

Rarely FS may present with status epilepticus. FS rarely (1-3%) lead to recurrent unprovoked seizures (epilepsy) in later childhood and adult life (risk is increased 2-5 fold compared with children who donot have FS). The chance of later epilepsy is higher if the FS have complex features , such as duration longer than 15 minutes , more than one seizure in the same day or focal features. Other adverse factors are an abnormal

neurologic status preceding the seizures (eg : cerebral palsy or mental retardation) early onset of FS (before age 1 year) and a family history of epilepsy. Even with adverse factors , risk of epilepsy after FS is still only in the range of 15-20% , although it is increased if more than one risk factor is present. Recurrent FS occur in 30-50% of cases. Therefore , families should be prepared to expect more seizures. In general , recurrence of FS does not worsen the long term outlook.

Mainly there are two types of Febrile Seizures : Simple Febrile Seizures and Complex Febrile Seizures. Simple Febrile Seizures constitute up to 85% of FS. They are generalized seizures , lasting < 15 minutes , not recurring within 24 hours , and with no postictal neurological abnormalities. Complex FS are focal , prolonged or recurrent within 24 hours associated with postictal neurological abnormalities (Todd paresis). They constitute around 15% of FS. Febrile status is seizure with duration of 30 minutes or more , either one long lasting or a series of shorter seizures without regaining conciousness in between.

Regarding the high prevalence of Febrile Seizure and parents apprehension due to seizure episode , on considering the importance of timely diagnosis and treatment , it is important to evaluate the risk factors in children with Febrile Seizure. With the identification of these risk factors , proper approach can be taken to improve the health of children.

Efforts have to be made in identifying the influential risk factors , so that the parents can be counseled and advised to take necessary precaution at the time of seizure episode. This study aimed to evaluate the possible risk factors associated with Febrile Seizure using a suitably designed proforma and to assess the effect of parental counseling by using a KAP questionnaire , which helps the parents to reduce anxiety and helps them in understanding and improving knowledge , attitude , concern and practice towards Febrile Seizure.

Febrile seizures may run in families. The diagnosis involves verifying that there is not an infection of the brain , there are no metabolic problems , and there have not been prior seizures that have occurred without a fever. Blood testing , imaging of the brain or an Electroencephalogram (EEG) is typically not needed for the diagnosis. Examination to determine the source of the fever is recommended. In otherwise healthy looking children a lumbar puncture is not necessarily required.

II. MATERIALS & METHODS

A prospective observational study was conducted in patients from department of Pediatrics in Cosmopolitan Hospital who were diagnosed with Febrile Seizure during the study period after obtaining permission for collection of data from the Human Ethical Committee. The study period is 6 months(December 2017 to May 2018) after getting clearance from Human Ethical Committee. Sample size for study is 134. Written informed consents were obtained as per ICMR Biomedical Research Guideline Format from the parents of children with febrile seizure satisfying the inclusion and exclusion criteria.

Inclusion Criteria

- Parents of children with febrile seizure who are willing to participate in the study.
- Patients between the ages of 6 months to 5 years with febrile seizure episode.

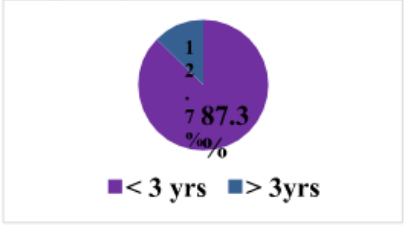
Exclusion Criteria

- Parents who are not willing to participate in the study.
- Patients with the back ground of chronic neurological conditions or metabolic disorder.

Data from parents were collected by using a suitably designed proforma. To assess the Knowledge , Attitudes and Practices (KAP) of the parents , suitably designed KAP questionnaires were administered on all the parents of enrolled patients before and after the introduction of an information leaflet. For data entry we had used the software Microsoft excel and all the analysis were carried out with the help of statistical software SPSS v.21 version for WINDOWS.The effect of counselling on knowledge , attitude and practice level of patients was statistically assessed using Wilcoxon signed rank test.

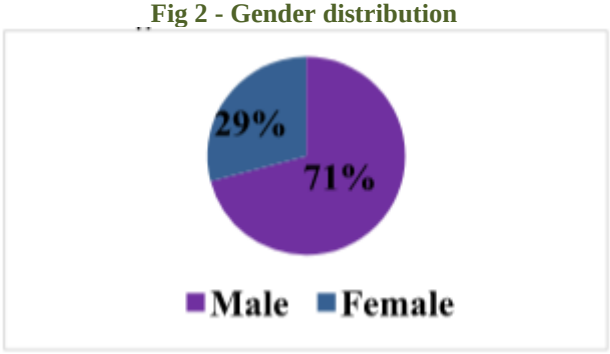
III. RESULTS & DISCUSSION

Fig 1 - Age distribution



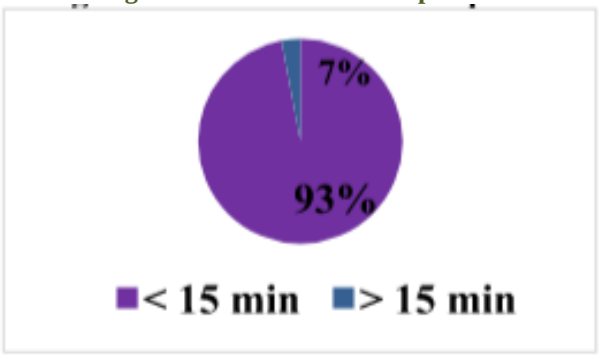
It is observed that 117/134 (87.3%) of patients were below 3 years of age group and 17/134 (12.7%) were above 3 years of age group. The majority of patients in the sample belonging to less than 3 years of age group.

Fig 2 - Gender distribution



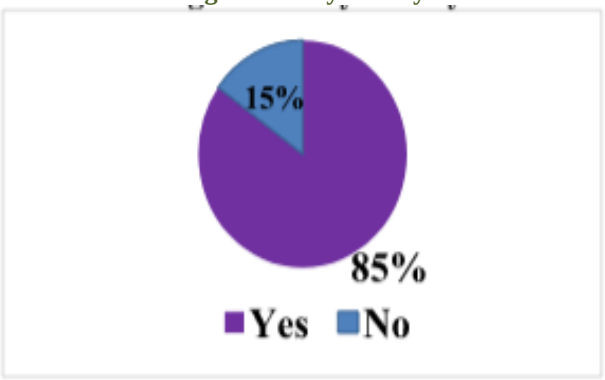
It is seen that 95 out of 134 (70.9%) patients were found to be males and 39 out of 134 (29.1%) patients were females. The majority of patients in the sample size were Males.

Fig 3 - Duration of seizure episode



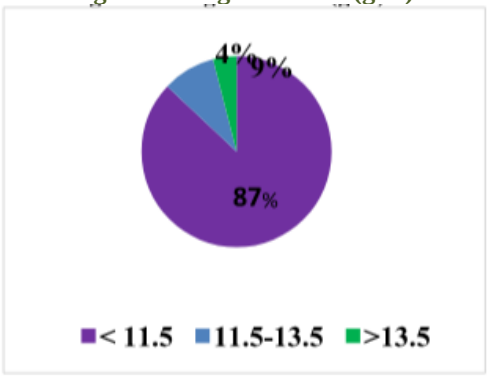
It is observed that 130 patients (93%) had a seizure lasting less than 15 minutes and remaining 7 out of 134 patients had a seizure episode lasting greater than 15 minutes. Thus it is evident that majority of the patients had a Simple febrile seizure lasting less than 15 minutes.

. Fig 4 - Family history



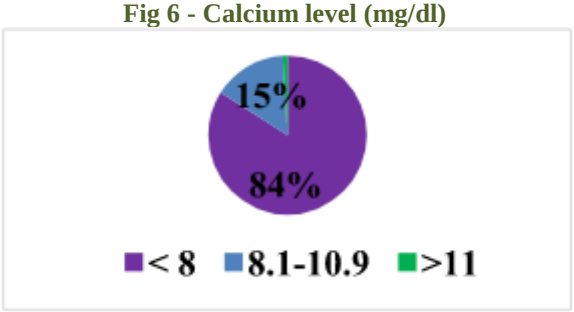
It is observed that in 85% of the patients the family history is positive and in 15% of the patients family history is negative. Majority of the patients have a positive family history of the disease.

Fig 5 - Hemoglobin level (g/dl)



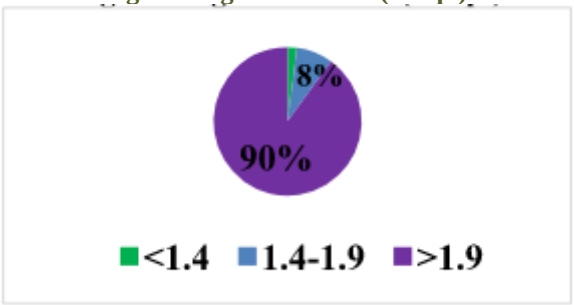
It is observed that 117 ((87%) patients out of 134 had a low Hemoglobin level and 17 (13%) patients had normal Hemoglobin levels. Majority of the patients had a low blood hemoglobin level.

Fig 6 - Calcium level (mg/dl)



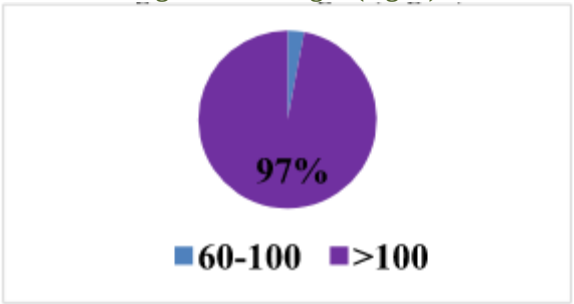
It is concluded that 113 patients out of 134 (84%) had a lowserum calcium level and 20 patients (15%) had normal serum calcium level. Majority of the patients had a low serum calcium concentration.

Fig 7 - Magnesium level (mEq/l)



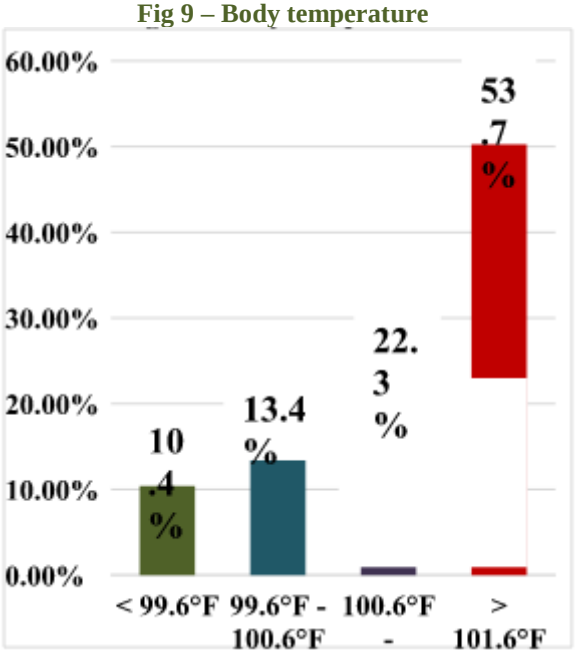
It is conclude that 121 patients out of 134 patients (90%) hadMagnesium level greater than the normal value. 10 patients (8%) had normalmagnesium and 3 patients (2%) had low magnesium levels. Majority of the patientshad a greater serum Magnesium concentration.

Fig 8 - Blood sugar (mg/dl)



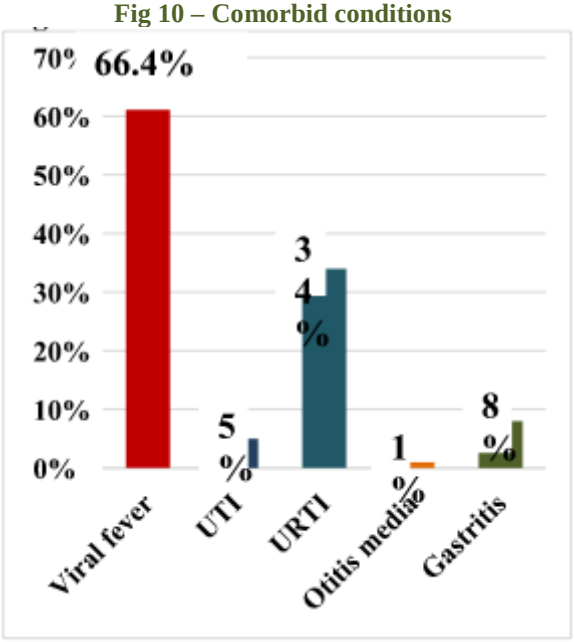
It is observed that 130 patients out of 134 (97%) had a blood sugar level greater than 100 mg/dl and 4 out of 134 patients (3%) had normal blood sugar values. Majority of the patients had a high blood sugar level.

Fig 9 – Body temperature



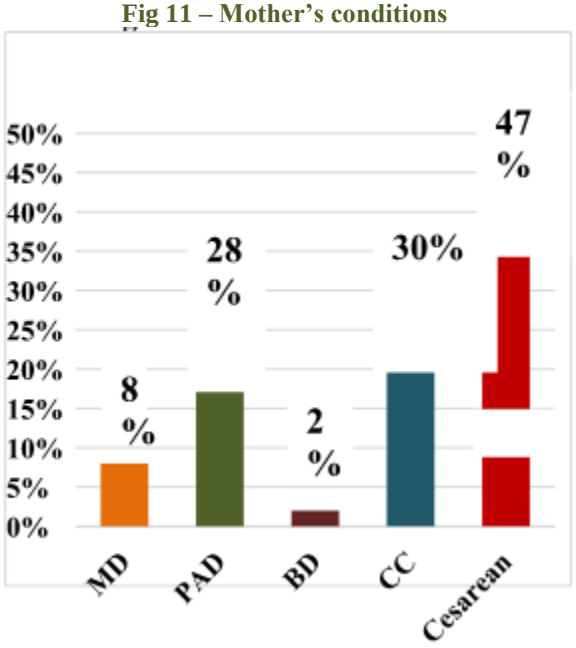
It is evident that 53.7% of the patients had a high body temperature before the seizure episodes ie, above 101.6˚F. 22.3% had a temperature between 100.6˚F and 101.6˚F , 13.4% had a body temperature between 99.6˚F and 100.6˚F and 10.4% of patients had a temperature below 99.6˚F. Majority of the patients had a peak body temperature before each seizure episodes.

Fig 10 – Comorbid conditions



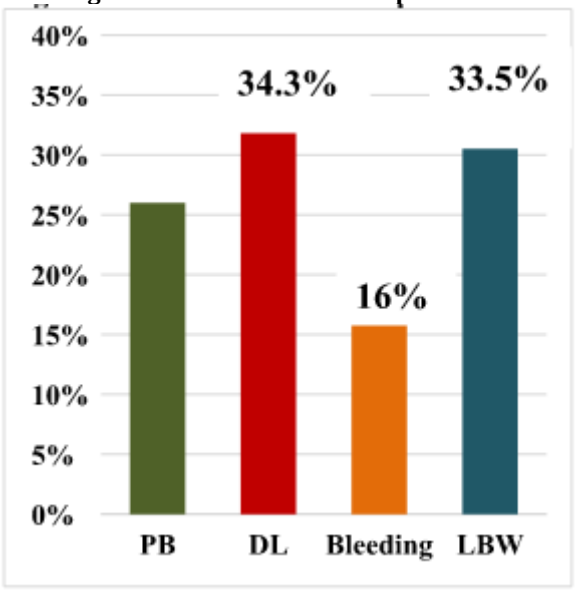
It is observed that 66.4% of the patients had Viral fever , 34% had URTI, 8% had Gastritis , 5% had UTI and 1% had Otitis media as co morbidities. Majority of the sample population had an associated Viral fever with FS.

Fig 11 – Mother's conditions



it is observed that in 47% of cases cesarian was founded as arisk factor for the occurrence of FS. In 30% cases coffee consumption , 28% cases pregnancy associated diseases , 8% cases maternal diseases and in 2% cases back ground diseases werefounded as risk factors.

Fig 12 – Antenatal Natal complications



It is observed that 34% of the patients reported with Difficult labour and Low birth weight as antenatal natal complications. 26% reported with Premature birth and 16% with Bleeding complications during antenatal natal period.

		FREQUENCY	PERCENTAGE
KNOWLE-DGE	Poor	87	65%
	Aver-age	43	32%
	Good	4	3%
ATTITUDE	Poor	132	98%
	Aver-age	1	1%

	Good	**1**	**1%**
PRACTICE	**Poor**	**93**	**69%**
	Aver-age	**40**	**30%**
	Good	**1**	**1%**

Frequency and Percentage distribution of knowledge , attitude and practice levels before counseling.

It is noted that 87 out of 134 (65%) parents have poor knowledge , 43 out of 134 (32%) parents have average knowledge and 4 out of 134 (3%) have high knowledge. 132 out of 134 (98%) parents have poor attitude , 1 out of 134 (1%) parents have average attitude and 1 out of 134 (1%) havehigh attitude. 93 out of 134 (69%) parents have poor practices , 40 out of 134 (30%) parents have average practices and 1 out of 134 (1%) have high practices. Hence , more than 97% of parents reported either a poor or average knowledge about disease, 99% of the parents reported either a poor or average attitude towards the disease and more than 99% of the parents reported either poor or average practices regarding the disease.

Frequency and Percentage distribution of knowledge , attitude and practice levels after counseling

	FREQUENCY		**PERCENTAGE**
KNOW-LEDGE	**Poor**	**0**	**0%**
	Avera-ge	**13**	**10%**
	Good	**120**	**90%**
ATTITU-DE	**Poor**	**4**	**3%**
	Avera-ge	**32**	**24%**
	Good	**97**	**73%**
PRACTI-CE	**Poor**	**0**	**0%**
	Avera-ge	**13**	**10%**
	Good	**120**	**90%**

It is observed that 120 out of 134 (90%) parents have high knowledge and 13 out of 134 (10%) parents have average knowledge 97 out of 134 (73%) parents have high attitude , 32 out of 134 (24%) parents have average attitude and 4 out of 134 (3%) parents have poor attitude. 120 out of 134 (90%) parents have high practices , 13 out 134 (10%) parents have average practices regarding the disease. Hence , more than 90% of the parents reported with high attitude towards the disease, more than 90% of the parents reported with high attitude towards the disease and more than 90% of the parents have reported a high practice.

IV. CONCLUSION

This study concluded that FS is a common convulsive event occurring in the children in the age group of 6 months to 5 years. A febrile seizure , also known as a febrile fit or febrile convulsion , is a seizure associated with a high body temperature but without any serious underlying health issue. Age, positive family history, peak body temperature, co morbidities such as viral fever, upper respiratory tract infections, gastritis, mother's condition during pregnancy, antenatal – natal complications are the major risk factors for occurrence of Febrile seizure. Gender, Urban residence, Day care attendance, Breast feeding duration, Vaccination etc were found to be the possible risk factors. Low levels of serum Haemoglobin and Calcium, increased Magnesium and Blood sugar levels were also recorded as risk factors for development of Febrile seizure. Among these peak body temperature is identified as the main risk factor for FS in children.

The parental counselling is found to be effective in reducing their anxiety, improving parental knowledge and their attitude towards FS also improved and this help the parents to act properly when their children have FS episodes. More studies should be conducted on this topic to assess the risk factors as well as the level of knowledge of the parents , so that we can prevent the incidence of seizure episodes to a greater extend. A well organised educational program should be conducted for parents of children with FS who were admitted to hospital in order to reduce the anxiety and fear. All patients who are admitted to the hospital should be given leaflets covering the following issues – brief idea about the pathophysiology of the disease, risk of recurrence, course of condition, first aid training and when to bring the child to hospital for further assessment. It is also needed to increase awareness and help parents to gain a better understanding of the disease.

CONFLICT OF INTEREST

There are no conflict of interest between the authors.

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