



# Febrile Seizure

Mrs D Sripriya, Ph.D Scholar, JJT University, Rajasthan.

## I. INTRODUCTION

Febrile Seizure is a common disorder which creates a pandemonium in the clinic and panic in the family of the affected child. It is not only the most common emergency, but also the most feared one as it is thought to be equivalent to death in some children. They are benign, age related responses to noxious stimuli but in some children this could be the first indicator of some neurological abnormality. Even though the disorder is common, the controversies and theories surrounding it are never ending. At least the focus now is more on prevention than other aspects.

## II. DEFINITION

Febrile Seizures that occur between the age of 6 and 60 months with a temperature of 38 degree centigrade or higher, that are not the result of central nervous system infection or any metabolic imbalance, and that occur in the absence of a history of prior afebrile seizures.

## III. INCIDENCE

Febrile Seizures occur in 2-7% of children under the age of 5 years. In one South Indian Study it is as high as 10%. It is our experience and shared by many others to be around 3% of hospital admissions. This low value might be due to the fact that most simple febrile seizures are observed and sent home without admission. A higher incidence is noted in boys when compared to girls.

## IV. GENETICS

A positive family history can be traced in 25-40% of children. Children of parents with febrile fits have a four-fold risk while children of parents with epilepsy have slightly higher risk. In many families the disorder is inherited as an autosomal dominant trait, and multiple single genes causing the disorder have been identified. In most cases the disorder appears polygenic, and the genes predisposing to it remain to be identified. Identified single genes include FEB 1,2,3,4,5,6 and 7 genes on chromosomes 8q13-q21, 19p13.3, 2q24, 5q14-q15, 6q22-24, 18p11.2 and 21q22.

A few epilepsy syndromes typically start with febrile seizures. These are generalized epilepsy with febrile seizures plus (GEFS+), severe myoclonic epilepsy of infancy (Dravet Syndrome), and temporal lobe epilepsy. GEFS+ is an autosomal dominant disorder characterized by multiple febrile seizures. Dravet syndrome is caused by a new mutation. They are more prolonged, are more frequent and come in clusters.

## V. CLASSIFICATION

**A simple febrile seizure** is a primarily generalized, usually tonic-clonic, attack associated with fever, lasting for a maximum of 15 min and not recurrent within a 24-hour period.

**A complex febrile seizure** is more prolonged (>15 min) is focal, and / or recurs within 24 hr.

**Febrile status epilepticus** is a febrile seizure lasting >30 min.

## VI. DIAGNOSTIC EVALUATION

Laboratory evaluation may include blood studies for calcium, inorganic phosphorus and electrolytes as well as glucose and urea nitrogen. A lumbar puncture may be performed and chest x-rays, throat culture and urinalysis may be done to determine the underlying cause of the fever. An EEG may be ordered after the episode to aid in the diagnosis.

## VII. TREATMENT

### 1. Antipyretics

- Paracetamol 15mg/kg of body weight per dose orally repeated 4<sup>th</sup> hourly or rectal paracetamol 2.5mg for children less than 1 year and 5mg for children above 1 year.
- Ibuprofen 5mg/kg per dose.
- Nimuselide 5mg/kg of body weight/24hrs in two divided doses for very high fever occasionally.



## 2. Anticonvulsants

- a. Diazepam 0.5mg/kg of body weight intravenous or intrarectal.
- b. Midazolam 0.1mg/kg of body weight can be given intramuscular in emergency.

Recent studies have shown that intranasal/sublingual midazolam is effective in prolonged febrile seizures and can be given by trained parents or health workers at home before shifting to hospital.

**3. Antibiotics** may be prescribed for certain infections.

## VIII. NURSING MANAGEMENT

**A. External sponging** is the best way to bring down temperature if the temperature is above 38.5 degree Centigrade (101.4 degree Fahrenheit). The child should not be permitted to become chilled, because shivering, with the further production of heat, increases the child's temperature.

Two methods can be used for sponging.

### FIRST METHOD

1. Protect the surface with an absorbent towel or blanket.
2. Undress the child completely.
3. Cover the child with an absorbent towel or blanket.
4. Place a cool wash cloth or ice pack on the child's forehead, change it as it warms.
5. Expose one area of the body at a time.
6. Begin at the trunk, sponge with a wash cloth along large blood vessels to the extremities, and wipe from the neck to axillae to palms and from groin to feet. Use gentle friction.
7. Place moist clothes over the axillae and groin.

### SECOND METHOD

1. Tepid moistened towels are wrapped around each extremity and are placed beneath the child and over the neck and torso.
2. The axillae and groin should be covered.
3. As the towels warm, they are changed to further cool the child's body.
4. Then the child's skin is dried with an absorbent towel and the child is dressed in light weight clothes.
5. The temperature is taken again in one-half hour, and if it is normal, a blanket can be used for covering. If no reduction occurs or if the temperature rises suddenly, the physician is noted. Sponging should be discontinued if the pulse increases, respirations decrease or drowsiness occurs, since these signs could signal circulatory collapse.

**A. Oxygen** may be administered if the child is cyanotic.

**B. Nasopharyngeal aspiration** may be necessary if secretions are excessive.

**C. Observing for signs of dehydration** and offering fluids every hour while awake.

The parents should be taught how to recognize the signs and symptoms of fever, to take their child's temperature and to carry out measures such as sponging and the use of antipyretics. Also, parents should be taught how to carry out first aid measures for seizures and how to observe seizures including their appearance, duration and frequency. If anticonvulsant medication is prescribed, the parents should be taught about its administration, as well as the side effects and signs and symptoms of toxicity which should be reported to the physician.

## IX. PROGNOSIS

The prognosis is generally excellent for febrile seizures. However, febrile seizures may indicate a serious underlying infectious disease, such as meningitis or sepsis. Though rare, complications associated with febrile seizures include status epilepticus, motor coordination deficits, mental retardation and behavioural problems.

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