Febrile Seizures

Febrile seizures are prevalent neurological occurrences that typically happen in young children, typically aged between 6 months and 5 years, as a result of a sudden increase in body temperature. These seizures are generally benign and typically last for a brief period, but they can be distressing for parents and caregivers.

Although the majority of febrile seizures do not result in lasting damage, it is crucial for parents and healthcare professionals to comprehend their origins, factors that increase the likelihood of occurrence, methods of control, and when it is necessary to seek medical assistance.

This article aims to serve as a comprehensive nursing guide to febrile seizures, exploring their clinical features, potential triggers, appropriate home care, and nursing interventions.

What is a febrile seizure?

Febrile seizures in children, which are the most prevalent seizure disorder in childhood, occur exclusively in conjunction with a high body temperature.

Febrile seizures are episodes of abnormal brain activity characterized by convulsions, which are induced by elevated body temperature and typically occur in young children.

Febrile seizures are most commonly observed in young children aged 6 months to 5 years, with the highest likelihood occurring during the second year of life.

However, evidence indicates that febrile seizures have a minimal association with cognitive performance. Therefore, the outlook for normal neurological function in children with febrile seizures is highly favorable.

Types

Febrile seizures have been categorized into three kinds based on epidemiological studies.

Simple febrile seizure.

The scenario involves a child between the ages of 6 months and 5 years experiencing a fever. The seizure that occurs is generalized and lasts for less than 15 minutes. The child does not have any neurological abnormalities based on examination or developmental history and is in good neurological health. The fever and seizure are not caused by conditions such as meningitis, encephalitis, or any other illness that affects the brain. The seizure is characterized as either a generalized clonic or a generalized tonic-clonic seizure.

Complex, febrile seizure.

For complex febrile seizures, the factors that determine the risk are the same as for simple febrile seizures, including age, neurological status before to the illness, and the presence of fever.

However, complex febrile seizures are characterized by either a focal or prolonged seizure lasting more than 15 minutes, or the occurrence of many seizures in quick succession.
Manifesting symptoms, characterized by a seizure accompanied by fever. In symptomatic febrile seizure, age and fever are the same as for simple febrile seizure and the child has a preexisting neurologic abnormality or acute illness.

Pathophysiology

The underlying mechanisms of the disease are still not fully understood, but there are various views on its etiology.

This is a distinct type of epilepsy that specifically manifests in young children and exclusively in conjunction with an increase in body temperature.

The precise pathophysiology remains elusive, however, it is evident that genetic predisposition significantly influences the manifestation of this condition.

The hypothesis that the pace of body temperature rise is a cause is often believed, however it lacks support from current laboratory and clinical studies.

There is some evidence suggesting that certain viruses (such as human herpesvirus-6 [HHV-6] and influenza A) and a bacterial neurotoxin (Shigella dysenteriae) have the ability to invade the central nervous system (CNS), but the evidence is not conclusive.

Statistics and Incidences

Febrile seizures are prevalent worldwide in children of all age groups.

Febrile seizures manifest in 2-5% of children between the ages of 6 months and 5 years in developed nations.
Within the population of children experiencing febrile seizures, around 70-75% exclusively have simple febrile seizures, while another 20-25% experience complex febrile seizures. The remaining 5% of children suffer

symptomatic febrile seizures.

Children who have experienced a prior uncomplicated febrile seizure have a higher likelihood of experiencing recurrent febrile seizures, which occurs in around one-third of instances.
Infants who experience their first uncomplicated febrile seizure before the age of 12 months have a 50% chance of experiencing a second seizure. After a duration of 12 months, the probability diminishes to 30%.

Children with uncomplicated febrile seizures have a higher susceptibility to developing epilepsy. The prevalence of epilepsy among those aged 25 years is approximately 2.4%, which is roughly double the risk observed in the overall population.

The existing body of literature does not provide evidence to support the concept that uncomplicated febrile seizures have a negative impact on intelligence (i.e., causing a learning handicap) or are linked to higher mortality rates.

Males exhibit a marginally (but indisputably) greater occurrence of febrile seizures.

Simple febrile seizures predominantly manifest in children between the ages of 6 months and 5 years.

Clinical Presentations

Children experiencing febrile seizures display the following symptoms:

A generally healthy child. Children who experience uncomplicated febrile seizures have normal neurological and developmental status both prior to and following the episode.

Seizures. In the absence of a fever, they do not have a seizure; the seizure is characterized as either a generalized clonic or a generalized tonic-clonic seizure.

Duration of less than 15 minutes. Febrile seizure activity ceases within 15 minutes, although a postictal period of drowsiness or disorientation may persist beyond the 15-minute threshold.

Evaluation and diagnostic results

No specific studies are indicated for a simple febrile seizure.

The central point of attention. Physicians should prioritize the identification of the underlying cause of fever.

Preexisting medical problems. Additional laboratory tests may be necessary based on the specific characteristics of the underlying fever-causing illness. For instance, a child with severe diarrhea may find it advantageous to have blood testing to assess electrolyte levels.

Medical Management

Based on a risk-benefit analysis, it is not recommended to use long-term or intermittent anticonvulsant therapy for children who have had one or more uncomplicated febrile seizures.

Treatment.

Consistent administration of phenobarbital or valproate reduces the frequency of recurrent febrile seizures.

Pharmacological therapy

The subsequent drugs can be administered to a pediatric patient experiencing a febrile seizure:

A benzodiazepine.
These agents possess antiseizure properties and exhibit prompt action in cases of acute seizures. When administered orally, diazepam can reduce the occurrence of subsequent febrile seizures when given alongside each febrile episode.

Many medical professionals may prescribe rectal diazepam, especially for patients who have

experienced prolonged febrile seizures, as a preventive measure against future episodes of febrile status epilepticus.
Antipyretics are medications used to reduce fever. While antipyretic medication does not effectively prevent uncomplicated febrile seizures, it is nonetheless helpful for other purposes, such as providing comfort.

Nursing Management

The nursing care provided for a patient experiencing a febrile seizure encompasses the following:

Nursing Evaluation Evaluation is essential to uncover underlying issues that may have contributed to the disease, as well as to anticipate any potential complications that may arise during nursing interventions.

Determine the fundamental reason. It is essential to identify the variables that cause the problem to occur. In order to recover, it is important to have a strong resolve and effectively address the root cause.

Evaluate the patient's essential physiological indicators. Monitor the patient's heart rate (HR), blood pressure (BP), and particularly the tympanic or rectal temperature.

Evaluate the individual's age and body mass. The risk of being unable to regulate body temperature is heightened by extremes in age or weight.

Evaluate the intake and output status. Monitor the amount of fluid consumed and the amount of urine produced; it may be necessary to administer fluids to correct dehydration.

Nursing diagnoses
According on the evaluation data, the primary nursing diagnoses are:

Hyperthermia related to antigens or microorganisms that cause inflammation.
Imbalanced nutrition related to an inability to meet the body’s daily energy needs.
Ineffective tissue perfusion related to failure to nourish the tissues at the capillary level.

Nursing care plan and goal setting

The objectives for a patient experiencing a febrile seizure are:

The patient's temperature will decline from 39°C to the typical range of 36.5°C to 37°C.

The patient will be devoid of problems and sustain a normal core temperature.

Patient will identify measures to promote nutrition and follow the treatment regimen.

The patient's weight will fall within the range of normal norms.

The patient will exhibit modifications in their behavior and lifestyle to enhance blood circulation.

The patient's significant other will express comprehension of the condition.

Nursing Interventions

Relevant nursing interventions for the patient include:

Check underlying factors. Evaluate the fundamental state and measure the body temperature.

Monitor vital signs. Monitor and record vital indicators.

Administer cold compresses. Describe the family's ability to provide a cold compress, which can effectively lower body temperature.

Don light attire. Provide lightweight garments with sweat-absorbent properties to enhance the dissipation of heat into the atmosphere.

Control or manage activity. Encourage sufficient intervals of rest to minimize metabolic requirements or oxygen consumption.

Augment the consumption of fluids. Advice to increase fluid intake to assist lower body temperature.

Examine the topic of nutrition. Examine dietary patterns and promote age-appropriate nutrition to meet the health requirements of the patient with a suitable dietary regimen for their condition.

Enhance blood flow to the tissues. Raise the head of the bed during the night to enhance blood circulation through the force of gravity.