

## The Clinician's Corner

Mary L. Zupanc, MD

### **Febrile Seizures: Dramatic but seldom harmful**

An 18 month old girl feels hot, “ on fire”. Before her parents can take her temperature, her eyes roll back, she stiffens and starts to jerk all arms and legs. She is unresponsive to her parents. The episode lasts only a few minutes, but to her parents it seems like an eternity. They call 911 and their only child is rushed to the emergency room of a local hospital. After careful evaluation in the emergency room, the parents are told that their daughter has had a simple febrile seizure. What does this mean, they wonder?

Febrile seizures occur in children between the ages of 6 months to five years of age, with the first febrile seizure generally occurring between 12-24 months of age. They consist of generalized twitching movements (clonic activity) of all arms and legs with associated loss of consciousness, occurring in the context of a high fever, generally over 102 degrees Fahrenheit. Most febrile seizures last a minute or two, but some can last only seconds and others can last more than 15 minutes. Most febrile seizures occur during the first day of illness and may be the initial symptom of illness.

Approximately one in twenty five children will have at least one febrile seizure and approximately one third of these children will have additional febrile seizures before they outgrow them at five years of age. They are particularly common between one and four years of age. Febrile seizures do NOT represent a form of epilepsy. It is a genetically predetermined developmental seizure disorder that occurs in 3-4 % of children before 5 years of age. After that time, children simply outgrow them. Febrile seizures run in families, with 30% having a parent or sibling with a similar history.

Although they are alarming to parents, the vast majority of febrile seizures produce no long lasting side effects. During a seizure, there is a small chance that a child will choke on food or saliva or fall and hurt his/herself. Using proper first aid procedures for seizures, these risks can be minimized. (See below).

There is no evidence to suggest that febrile seizures cause brain damage. Large studies have found that these seizures do not result in mental retardation or cerebral palsy. In fact, children perform equally to their peers in school performance and intelligence tests.

Additionally, the risk of developing epilepsy is minimal. Between 95-98% of children with febrile seizures will not go on to develop epilepsy. There are risk factors which may increase the chance that a child will develop seizures without fever, i.e. epilepsy. They include: prolonged seizures lasting greater than 30

minutes; seizures that affect only one portion of the body (focal seizures); seizures that recur in 24 hours; children with underlying neurologic abnormalities or developmental delays; family history of epilepsy.

What should be done if a child has a febrile seizure? Parents can take some action to insure the safety and well being of their child during a febrile seizure:

- 1) Place the child on his/her side
- 2) Remove any hard or sharp objects near the child in order to prevent injury
- 3) Loosen tight or restrictive clothing that the child is wearing in order to maximize breathing capacity and prevent injury
- 4) Do not restrain the child or interfere with the child's movements
- 5) Do NOT attempt to put anything in the child's mouth. The tongue cannot be "swallowed".

When should a parent call the doctor? First time febrile seizures must be evaluated by a physician as soon as possible. About 90% of febrile seizure will stop by themselves within 10-20 minutes. However, if the seizure lasts more than 5 minutes—or if your child has two or more seizures in quick succession—call for emergency medical attention (911).

If the seizure is still occurring once the child arrives in the emergency room, a physician will give the child medication such as diazepam or lorazepam via the rectum or intravenously to stop the seizure. The physician will examine him/her for possible causes of the fever and seizure. The fever is usually from a typical childhood illness, such as middle ear infection or pneumonia. Sometimes, infections of the central nervous system can cause seizures. One such infection is meningitis, a condition where the membranes surrounding the brain become infected and inflamed. The major symptoms include headache, stiff neck, and fever. Another central nervous system infection is encephalitis, an inflammation of the brain itself, usually due to a virus. The main presenting symptoms of encephalitis include fever, lethargy, confusion, and seizures. If the doctor suspects a central nervous system infection, a lumbar puncture will be performed. Although this test may seem frightening to parents, it is a benign, routine procedure that rarely produces any side effects. Lumbar punctures yield extremely valuable information. With this procedure, approximately one teaspoon of spinal fluid is removed with a needle placed into the lower back. This test is the only way to diagnose meningitis or encephalitis.

It is possible that the physician may want a child to stay in the hospital briefly for further observation after a febrile seizure. However, this is often not necessary. Many children go home with their parents.

Do children need to be placed on medication to prevent another febrile seizure? The answer is almost always no. Antiepileptic medications do not prevent the development of epilepsy in children with febrile seizures. Furthermore, febrile seizures are usually benign, self limited seizures that are outgrown by five years

of age without any neurological problems. Antiepileptic medications also carry side effects, most often outweighing the benefits. For example, phenobarbital can lead to hyperactivity, poor attention and concentration, learning problems or sleep disturbance. Sodium valproate (Depakote; Depakene) is also effective in preventing febrile seizures, but it carries a significant risk of fatal liver disease in young children. Rectal diazepam (Valium) is often prescribed--to be used in the event that a child has a prolonged febrile seizure lasting greater than five minutes. Sometimes oral valium is given if a child is prone to recurrent febrile seizures with intercurrent illness.

One should take comfort in the following facts:

- 1) Febrile seizures do not directly lead to brain damage, cerebral palsy or mental retardation.
- 2) Febrile seizures are outgrown by five years of age and do not result in epilepsy.
- 3) Only about 30% of children who have one febrile seizure will ever have another one.
- 4) Having a prolonged febrile seizure does not make it more likely that a child will have another prolonged febrile seizure.

Within an hour or two of a febrile seizure, most children are back on their feet, running around and playing. By staying calm, carefully observing their child, and knowing when to call the doctor, parents are doing everything that is needed to take good care of their child.