

# PEM GUIDE - FEBRILE SEIZURES

## INTRODUCTION

Febrile seizures are a common childhood condition. The incidence is between 2 to 4 % of all children. The peak age is 18 to 24 months, but can be seen from 6 months to 6 years. They frequently are frightening to parents but generally represent a benign condition. Febrile seizures can be simple or complex.

<b>CLASSIFICATION OF FEBRILE SEIZURES</b>		
	<b>SIMPLE</b>	<b>COMPLEX</b>
Duration	< 15 minutes	> 15 minutes
Frequency	Once in 24 hours	More than once in 24 hours
Seizure Type	Generalized Tonic Clonic	Focal
Neurologic Deficits	Absent	Present
Percentage	80 %	20%

It is difficult to predict ahead of time which children will have febrile seizures. A history of febrile seizures in a first or second degree relative, day care, neonatal discharge greater than 28 days, and slow neurological development have all been associated with increased risk. With any one of these factors the risk rises from 2-4% to 6-10%. If a child has 2 risk factors the incidence increases to 28%, however, less than 3% of the population have 2 or more risk factors.

## CLINICAL EVALUATION

The diagnostic work up for children that have had a febrile seizure is minimal. They do not have an increased incidence of bacteremia or UTI. If the child had a simple febrile seizure and returns to their baseline mental status, they do not need blood or urine tests to evaluate the seizure. They may require those tests as part of a fever work up, but having had a simple febrile seizure shouldn't alter your decision making process. There is no role for a head CT in simple febrile seizures. If the patient had a complex seizure, a head CT should be performed. The incidence of a significant positive finding is between 5 to 10%.

There is data to show a lumbar puncture should only be done if you clinically suspect meningitis. In most studies, everyone with meningitis was clinically ill appearing or had obvious meningeal signs. Green took the opposite approach in his study. He looked at patients with documented meningitis and determined how many had febrile seizures.

Almost 20% had a febrile seizure (other studies found between 4 and 13%), however, 90% had persistence of altered consciousness. The rest had focal neurological signs, stiff neck or petechial rash. Many clinicians will wait a short period of time to see if the patient's mental status normalizes before progressing to an LP. The AAP guidelines strongly suggest a lumbar puncture for patients less than 12 months or if they have been on antibiotics. This is because neurological signs are more subtle in young children and pretreatment with antibiotics may have partially treated meningitis. The AAP states that you should consider a lumbar puncture for 12 to 18 months and does not routinely recommend a lumbar puncture for children older than 18 months (the peak incidence).

## **MANAGEMENT**

Generally, no therapy is needed for children who have had a febrile seizure. Many clinicians recommend the use of "Round the clock" antipyretics such as Acetaminophen or Ibuprofen. There are several studies from Europe that do not show any difference in recurrence rate with or without the use of antipyretics. Empirically, it makes sense that you cannot have a febrile seizure if you do not have a temperature, however, no study has been able to prove this. Phenobarbital and Sodium Valproate have both been shown to decrease the incidence of future febrile seizures. They are not routinely prescribed because of their side effects and because febrile seizures have not been shown to have deleterious consequences.

The only drug that is sometimes prescribed is Diazepam. Knudson showed that for patients with 2 or more risk factors for recurrence, giving rectal Diazepam decreases the risk of recurrence to 12%. The problem is many patients have side effects from the Diazepam - including altered mental status. This makes evaluation in the emergency department more difficult and increases the need for performing a lumbar puncture.

## **DISPOSITION**

Simple febrile seizures can be discharged home after the parents have been counseled about febrile seizures. Complex febrile seizures often require a more extensive evaluation and a neurology consult. Admission should be strongly considered for this group.

## PROGNOSIS

RISK FACTORS FOR RECURRENCE
Age < 15 months
Family History of Epilepsy
First Degree Relative with Febrile Seizure
Complex Febrile Seizure
Day Care Attendance < 20 hrs/wk

FACTORS	% With	RISK
0	25%	12%
1	40%	25%
2	25%	50%
3	8%	80%
4	1%	100%
5	1%	100%

There is another factor that Knudson did not include and that is fever height. The lower the temperature that the patient has their febrile seizure at, the greater the chance or recurrence. Berg found that the incidence of recurrence if the febrile seizure occurs at 101 degrees is 35% and decreases in a linear fashion to 13% for a temperature of greater than 105 degrees. There is data to support that the seizure occurs early on in the febrile event. Often, the first sign the patient is ill is when they have a seizure. There is NO data to support the commonly held belief that a high rate of rise in temperature causes febrile seizures. This was based on animal studies using hyperthermia as a mechanism. The only human study did not show any association with rate of rise in temperature and febrile seizures.

A common question is will my child develop epilepsy. The risk increases from 4 per 1,000 to 1%. Some factors increase the baseline risk. Having a complex febrile seizure, febrile seizures in a first degree relative and having a pre-existing neurological abnormality all increase the risk for developing epilepsy. 1 risk factor increases the risk of epilepsy to 2% and 2 or more increases the risk to 10%. There have been 2 large studies that have assessed future intellectual performance and both have shown no effect as a result of having had a febrile seizure.