

Simple febrile seizure: Answers to common parental concerns

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Abstract

Episodes of simple febrile seizure in a child is one of the most dreadful events for any parent. Parental stress and anxiety shoots up at this point of time. Thousands of queries can flash up in the mind of a parent when taking care of their child with febrile seizure. This article is an attempt to gather all the evidenced base information for the better understating and management of a child with a simple febrile seizure from a parent perspective.

Keywords: seizure, febrile illness, parental concern

1. Introduction: What is a seizure?

A seizure is a transient neurologic event caused by excessive or synchronous cortical neuronal activity in the brain. This can manifest as involuntary changes in body movement or function, sensation, awareness, or behaviour [3].

2. What is a febrile seizure?

Febrile seizures are seizures that happen between the age of 6 and 60 months with a temperature of 38°C (100.4°F) or higher, that are not the result of central nervous system infection or any metabolic imbalance, and that occurs in the absence of a history of prior afebrile seizures [1].

It can be of two types. A simple febrile seizure is a primary generalized, usually tonic-clonic, attack associated with fever, lasting for a maximum of 15 min, and not recurrent within a 24-hr period. The majority of febrile seizures (80–85%) are simple seizures [4]. A complex febrile seizure is more prolonged (>15 min), is focal, and/or reoccurs within 24 hr. If febrile seizure lasting longer than 30 min, it is called Febrile status epilepticus [1].

3. My child is completely healthy and all his lab reports are normal, then how he could get this problem?

Majority of febrile seizure occurs in neurologically normal children [11]. Between 2% and 5% of neurologically healthy infants and children experience at least 1, usually simple, febrile seizure [1,3]. Incidence in India is about 5-10% [18].

4. Why fever cause seizure only in some children?

The cause of febrile seizures is multifactorial. It is generally believed that febrile seizures result from the vulnerability of the developing central nervous system (CNS) to the effects of fever, in combination with an underlying genetic predisposition and environmental factors. Febrile seizure is an age dependent response of the immature brain to fever. During the maturation process, there is enhanced neuronal excitability that predisposes the child to febrile seizures. As such, febrile seizures occur mainly in children before the age of 3 years when the seizure threshold is low [18, 26].

5. What type of risk factor my child had to recur this problem?

Major risk factors include age <1 yr, duration of fever <24 hr and fever 38-39°C (100.4-102.2°F) [1, 16]. The risk of recurrence is relatively high in those first febrile seizures occurred in conjugation with fever <39°C [11, 23]. It is unclear whether the seizure is triggered by a rapid rise in temperature or the actual temperature attained [26]. The younger the child is at the time of the first seizure, the greater the risk for additional febrile seizures [26, 23].

Minor risk factors include the family history of febrile seizures, family history of epilepsy, complex febrile seizure, day-care, male gender (complex febrile seizure incidence is not gender-related) [11], lower serum sodium at time of presentation etc. [1]. The chances of recurrence of febrile seizure depends on the extent of the involvement of these risk factors.

6. Is there a chance to get this problem again in future?

Febrile seizures recur in approximately 30% of those experiencing the first episode, in 50% after 2 or more episodes, and in 50% of infants younger than 1 yr. old at febrile seizure onset [1]. Febrile seizure generally don't appear or rare after the age of 6 [7].

7. What are the signs that can expect during the simple febrile seizure?

Loss of consciousness at the time of seizure, Foaming at the mouth, tonic-clonic movements of the limbs and rolling back of the eyeballs, difficult breathing and pallor or cyanosis may also occur. The seizure usually lasts for a few seconds to at most 15 minutes (mostly <90 sec) [1, 18, 22].

8. Why my child was sleepy and tired after the episode? Should I be worried about it?

Most patients with simple febrile seizures have a very short postictal state and usually return to their baseline normal behaviour and consciousness within minutes of the simple febrile seizure [1]. The child may be weak and tired after the episode and there is no need to be worried about.

9. is this problem cause immediate danger to his life?

In a previously normal child, no increased risk of death from simple febrile seizure is identified [7, 1, 23].

10. Will there be any neurological problem after an episode?

Simple febrile seizures do not cause brain damage; the child's subsequent intellectual performance is the same as in children who did not experience a febrile seizure [5, 7, 22, 24].

Studies show that long-term intellectual and behavioural outcome of children with simple or complex febrile seizure is the same as that of without febrile seizures [7].

11. All are saying my child may get epilepsy in future, is that true?

Although approximately 15% of children with epilepsy have had febrile seizures, only 2-7% of children who experience febrile seizures proceed to develop epilepsy later in life. Risk of subsequent epilepsy in case of febrile seizure is only 1% [1]. Children with simple febrile seizures are at no greater risk for epilepsy than the general population [3].

12. I gave clobazam tablet and paracetamol syrup as suggested by the physician when his temperature rises to 100.4 F, still my child got this problem again. How it could be possible?

Clobazam helps to reduce, do not eliminate, the risk of recurrence of febrile seizure. Antipyretics like paracetamol can decrease the discomfort of the child but do not reduce the risk of having a recurrent febrile seizure, probably because the seizure often occurs as the temperature is rising or falling [1, 23].

13. The temperature wasn't high, it was just 100.4F, still my child got into it again. What I should do?

Febrile seizures typically occur relatively early in the course of an illness (Typically when the temperature is high [8], usually $>39^{\circ}\text{C}/102.2^{\circ}\text{F}$) [17, 18], and sometimes the convulsion is the first sign that the child is unwell [6].

14. What is intermittent drug therapy for febrile seizure prophylaxis?

These are the treatment method where prophylactic seizure medication starts to give during the beginning time of febrile illness to a few days (Probably 3 days) if there is a significant risk of recurrence.

In children with risk factors for recurrence or those with frequent recurrences (2 to 3 in 6 months or 2 to 4 in one year), intermittent prophylaxis reduces recurrences by 80%. Oral benzodiazepines (diazepam 0.6-0.8 mg/kg/day in 3 divided doses or clobazam 0.8-1 mg/kg/ day in 2 divided doses) should be started at the first sign of any febrile illness and continued for first 3 days of febrile illness.²⁷ These medication should not be given to the child until it is prescribed by the treating physician and doses may also vary depending upon the child's physiological condition.

15. Is clobazam safe for my child for febrile seizure prophylaxis?

Intermittent (Only during the time of fever as directed by the physician) Clobazam is safe and efficacious in preventing the risk of FS recurrence. It may be an alternative to diazepam in the intermittent treatment of FS recurrence [19]. Continuous prophylaxis not recommended

where the risk overweight the benefits [21].

16. I am confused with the Paracetamol syrup dosage. Sometimes they are telling to give 5ml and other times 2.5 ml. What should I follow?

The amount of medication to be given depends upon the strength of the medicine. The oral preparations of paracetamol commonly available in two strength, 120mg/5ml and 250mg/5ml. The usual dosage is up to 15mg/kg. Suppose if the weight of the child is 8 kg, the dosage will be $15\text{mg} \times 8\text{Kg} = 120\text{mg}$. So 120 mg preparation of 5ml or 250mg preparation of 2.5 ml is recommended. Before giving the medication always check the strength of the preparations.

17. What should I do in the episode of fever, if my child vomits after taking the clobazam?

If your child vomits within 30 minutes after having a dose of clobazam, give them the same dose again. If your child vomits 30 minutes after having a dose of clobazam, you do not need to give them another dose. Wait until the next normal dose. If your child vomits continuously or do not tolerate anything by mouth, seek medical help immediately [20]. If your doctor already advised in the previous visit to give any medication via rectal rout (Eg. Paracetamol suppository) in case if not tolerated by mouth can be given as an emergency management while bringing the child to the hospital.

18. What if I forget the dose of clobazam?

If you recall up to four hours after you should have given a dose, provide your child the missed dose. For example, if you usually give a dose at 9 am, you can give the missed dose at any time up to 1pm. If you recall after that time, do not administer the missed dose. Wait until it is time to provide the next normal dose. Never give a double dose of clobazam [20].

19. Is it necessary to bring the child immediately after the episode of febrile seizure?

It is important to not to be panic and remember simple febrile seizure doesn't harm your child. You can give prescribed medication as prescribed by the physician and closely monitor the child by giving proper care. The same day or the next day, you can bring the child to the hospital for evaluation of the fever. But if the seizure lasts more than 5 min or if it recurs within 24hr, you should seek medical help immediately [25].

20. What type of diet should I give my child?

No special diet required until it is specifically directed by the physician. If your child has iron deficiency, iron-rich diet can be given as prescribed by the physician as it is associate with an increased risk of febrile seizure [1, 12, 13, 14, 15].

21. When I see my child having a febrile seizure, my body doesn't move and I feel drowsy. Why does this happen to me?

Febrile seizure in children may cause anxiety among parents due to lack of comprehension about the event and how to act during the seizure [2]. A better understanding of your child's condition may help you to manage this problem effectively.

22. I feel sorry that I could not do the advised interventions correctly for my child which dragged him to this problem again.

No need to be regretted regarding interventions you provided for the child by thinking you didn't do it well. All the intervention that we did was to reduce the risk of developing febrile seizure and not to eliminate it. Some children have the episode of FS even after providing all the necessary prophylactic interventions. The parents need to support and appreciate each other for all the interventions provided for the child rather than being regret or blaming each other. You can always ask your concerns to the treating physician or a paediatric nurse for the better understating.

23. If vaccination is given to the child, will there be a risk of febrile seizure?

Sometime vaccination can indeed cause mild fever which may rarely lead to a febrile seizure. But always remember the simple febrile seizures are harmless and the benefits of essential vaccination outweigh the risk of post-vaccination febrile seizure.¹⁸ Use of prophylactic antipyretic before vaccination is not recommended^[18].

24. What I should I do on the episode of simple febrile seizure?

If a seizure is witnessed, the most important thing is to remain calm. Ensure that all objects or furniture that may cause harm are moved. Do not attempt to restrain or place anything into the mouth. Place the child recumbent and turned to the side to prevent aspiration if vomiting occurs^[3]. Closely note the physical signs like body movements, Duration and frequency of the seizure. If it lasts more than five minutes or recurs, call for medical help or bring the child to the nearby hospital^[7, 26]. If benzodiazepine suppository or intra-nasal medications are there kept at home, it can be administered as directed by the physician. A diazepam suppository after a febrile seizure will reduce the incidence of recurrent febrile seizures during the same febrile illness^[9, 10].

25. What are the precautions that I should take for my child to reduce the occurrence of febrile seizure again?

First 24 hrs after the onset of fever is very important as it is less likely to appear or recur thereafter^[1, 7]. If it occurs, usually it will be once per 24hrs^[7]. It commonly presented near the onset of fever rather than after prolonged fever^[26]. As soon as the child found to be having fever, prophylactic seizure medication and antipyretics should be given to the child as prescribed by the physician. Emergency medication (Rescue medication) should be kept available to administer if indicated (Eg. Seizure lasts more than 5 min)^[26, 24] as per the physician order (Eg. Benzodiazepine suppositories/Rectal gel or nasal spray). General home care for fever should be given. There is no need to restrict the child's activity but let the child be at home until he/she recovers. Consult with the doctor for the evaluation of the fever. Usually, the cause of febrile illness is viral in origin.

26. Can I do anything to prevent the occurrence of febrile seizure?

The only thing that we can do to prevent is to keep your child away from frequent febrile illness^[11]. Try to identify the illness as early as possible and do the prophylactic interventions as prescribed by the physician may reduce the

risk of developing febrile seizure. Antipyretics and other fever controlling interventions have no role in the prevention of recurrence of febrile seizure but it can make your child comfortable^[18].

Tepid sponge baths are not suggested for several reasons: they are not effective in significantly lowering the temperature, the shivering effect further increases metabolic output, and cooling causes discomfort to the child^[25].

Note: No medication should be given to the child until it is prescribed by the treating physician. The purpose of this article is to get a better understating of febrile seizure to alleviate the parents stress and anxiety, which may help them to manage the episodes effectively by not being panic. The content of this article never intended to replace the expert advice from your doctor.

Conclusion

Parent's care and love for their child is one of the most selfless thing in the world. To enable the parents to provide the best possible care during the difficult times of their child's illness, they should be mentally prepared. In the episodes of simple febrile seizure, it is extremely important to not to be panic and provide the necessary care as required. Always ask queries to the health care providers and no medication should be given to the child unless it is prescribed by the physician. Nurses play an important role in addressing parental care concerns and provided them with sufficient information.

Abbreviations

FS-Febrile seizure.

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