

# Febrile Convulsions

## Definition

A seizure associated with a fever occurring in a developmentally normal child

Seizures arising from fever due to infection in the central nervous system (e.g. meningitis and encephalitis) are **not** included in the definition of febrile seizure

## Epidemiology

- Affect 4% of all children between 6 months and 5 years
- Onset rare after 6 years
- Peak incidence is in the second year of life
- Often FH of febrile convulsions

## Classification

### Simple febrile seizures (~ 75%)

- Isolated
- Generalised, tonic-clonic
- Usually brief ( < 5mins) but must last <15mins
- Do not recur within 24hrs or within same febrile illness

### Complex febrile seizures (~20%)

Have one or more of following features:

- Focal/Partial onset or features
- Last >15mins
- Incomplete recovery after 1 hr
- Recur within 24hrs or within same febrile illness

### Febrile status epilepticus (<5%)

- Febrile seizure lasting >30mins

## **Acute management of a fitting child**

- Place the child in the recovery position
- If the seizure lasts more than 5 minutes give:
  - Rectal diazepam
  - Recommended doses:
    - Less than 1 month of age: **1.25–2.5 mg**
    - 1 month–1 year of age: **5 mg**
    - 2–11 years of age: **5–10 mg**
- Repeated after 5 minutes if the seizure has not stopped
- Alternatively single dose of buccal midazolam can be given but not licensed for this indication
- Call an emergency ambulance if, 10 minutes after the first dose:
  - Seizure has not stopped
  - Ongoing twitching (although the larger jerking movements have stopped)
  - Another seizure has begun before regaining consciousness.
- Measure blood glucose if the child cannot be roused or is convulsing

## **Assessment of a child post febrile convulsion**

- Try to determine the cause of the fever from history and examination e.g. viral illness, otitis media, respiratory infection, UTI, gastroenteritis
- Consider using NICE traffic light system to help identify the likelihood of serious illness
- Have a low threshold for urgent paediatric referral if appears unwell

## **Investigations**

- Not routinely necessary
- The purpose of any investigation should be to identify the cause of the fever, not to diagnose febrile seizure
- Consider urinalysis and MSU if no identifiable source of infection

## **Arrange urgent hospital assessment by a paediatrician for:**

- All children with a first febrile seizure
- All children who have a suspected serious cause for the febrile seizure (e.g. meningitis, pneumonia) or who appear unwell.
- All children who have previously been diagnosed with a febrile seizure if:
  - There is diagnostic uncertainty
  - Complex seizure
  - <18 months of age
  - Parents are anxious and feel that they cannot cope or home circumstances are unsuitable

Consider urgent hospital admission for a short period of observation if the child has no apparent focus of infection.

## **Consider non-urgent referral if:**

- The child is well at presentation, with none of above criteria for admission and an alternative cause for seizures is suspected (e.g. epilepsy)
- The child is at increased risk of epilepsy (e.g. has a neurological or developmental condition, or FH epilepsy).
- The parents request a specialist opinion
- Prophylaxis with antiepileptic drugs is being considered e.g. children who have a low seizure threshold during febrile illness, particularly if the seizures are prolonged

## **Advice that should be given to parents**

### **1) Explain diagnosis**

- Although short-lasting seizures are frightening to watch, they are not harmful to the child, do not cause brain damage or death
- Febrile seizures are not the same as epilepsy. Epilepsy may develop later, but this is rare (1 in 50 children)
- Immunization is still advised after a febrile seizure, even if, as rarely happens, the febrile seizure followed an immunization.

### **2) Management of a fever**

- Explain that controlling fever does not prevent recurrence but does make the child more comfortable if distressed and help to prevent dehydration
- Do not use antipyretic drugs with the sole aim of reducing body temperature or of preventing febrile seizures.
- Consider paracetamol or ibuprofen if the child is distressed or unwell
- Do not over- or under-dress a child with fever
- Tepid sponging, fanning and cold bathing are not recommended
- Ensure an adequate fluid intake and monitor for signs of dehydration

### **3) Management of further febrile seizures:**

- Place the child in the recovery position on a soft surface, with the face turned to the side
- Do not force anything into the child's mouth
- Note the time that the seizure started, and stay with the child
- If lasts < 5 minutes:
  - Telephone their GP or NHS Direct for advice
- If continues > 5 minutes:
  - Call 999

### **4) Explain when and how when access medical advice**

## **Arrange a follow-up:**

- To review child
- To answer any further questions that the parents or carers might have
- Have a low threshold for early review if there is no focus of infection
- Liaise with out-of-hours providers, to ensure direct access for the child if further assessment is required

## **Risk of recurrence after first febrile seizure**

- 1 in 3 will have a further febrile convulsion in the future
- 1 in 10 will have 3 or more further febrile convulsions
- Reoccurrence is most common within a year of the first febrile seizure (70%)
- After 3 yrs of age reoccurrence much less likely
- Risk factors:
  - <18 months of age
  - Family history of febrile seizures or epilepsy
  - A partial seizure
  - Multiple seizures during the same febrile episode
  - A complex first seizure (the evidence for this is less consistent)
  - Attendance at a day care nursery (increased frequency of febrile episodes)
- The greater the number of risk factors, the greater the risk of recurrence

## **Risk of developing subsequent epilepsy**

- 2% of children having 1 febrile convulsion will go onto develop epilepsy
- (Quoted as < 1% in GP Oxford Handbook )
- Increased risk if:
  - FH epilepsy
  - Initial seizure complex
  - Pre-existing neurological deficit

## **References**

- GP Notebook
- Oxford handbook of General Practice (2005)
- [www.patient.co.uk/showdoc/23068735/](http://www.patient.co.uk/showdoc/23068735/)
- Febrile seizure, Clinical Knowledge Summaries (June 2008)