Management of Febrile Convulsions

Purpose
To provide guidance for the management of children presenting with febrile convulsions.

Intended Audience
All medical staff managing children presenting with febrile convulsions.
1. Introduction

A febrile convulsion is a seizure usually occurring in a child aged from six months to five years, precipitated by fever, usually of more than 38 degrees arising from infection outside the nervous system in a child who is neurologically normal.

2. Guideline Content

A. DEFINITIONS

Febrile convulsion: A seizure usually occurring in a child aged from six months to five years, precipitated by fever, usually of more than 38 degrees arising from infection outside the nervous system in a child who is neurologically normal.

Complex febrile convulsion: A febrile convulsion with one of the following features: Longer than 15 minutes, partial/focal onset or focal features, more than one convulsion per episode of fever or within 24 hours, or with incomplete recovery within 1 hour."

Simple benign febrile convulsion: An isolated generalized tonic clonic seizure lasting <15 minutes that doesn't recur within the same illness or within 24 hours

Recurrent febrile convulsions: "More than one episode of fever associated with convulsions".

Febrile status epilepticus- a febrile convulsion lasting more than 30 minutes or a series of seizures without full recovery in between that lasts for 30 minutes or longer.

B. PREVALENCE AND PROGNOSIS

Prevalence

- 2-5% of children in UK have at least one febrile convulsion.
- Most occur between 6 months to 3 years
- There is a peak incidence at 12-18 months

Prognosis

In a child with normal development and neurology:

i) Risk of recurrent febrile convulsions:
• Approximately 17.1% will have 1 occurrence
• Approximately 8.9% will have 2 recurrences
• Approximately 5.8% will have 3 or more recurrences
• Approximately 75% of recurrences occur within 1 year of the 1st febrile convulsion

The risk is increased by:
• A first febrile seizure before the age of 18 months,
• A family history of febrile seizures or epilepsy,
• Following a complex febrile seizure,
• Multiple seizures during the same febrile episode,
• Having a short duration of fever or having a seizure with a fever of less than 39 degrees

ii) Risk of developing afebrile convulsions:
There is a slightly increased risk.
• Risk of developing epilepsy per se 1.8%.
• After one simple febrile convulsion risk is 2 - 7.5%.
• After a complex febrile seizure 10-20%

Risk is also increased by:
• Neurological abnormalities or developmental delay before the onset of febrile seizures,
• FH of epilepsy
• a short duration of fever (<1 hour) before the seizure
• Having had a complex febrile seizure

There is no increased risk of intellectual delay, school difficulties or behavioural problems after having febrile convulsions. However, recent evidence suggests that there is a risk of language delay in children with recurrent seizures.

C. ADMISSION TO HOSPITAL

If the following factors are present after a first febrile convulsion the child should normally be admitted:

• No obvious focus of infection.
• A complex convulsion.
  Child less than 18 months old
• Parents request admission.
• Raised parental anxiety

It is also recommended that any child should be admitted, even if it is not their first seizure, if:
They have had a complex seizure
They are less than 18 months old

NB A child presenting with recurrent febrile fits should also be admitted if there is any doubt about the diagnosis, as a history of previous convulsion does not rule out the possibility of meningitis, the possibility of a partially treated meningitis should also be considered in a child currently or recently taking antibiotics and admission should therefore be considered in these children

D. MANAGEMENT

I. The fit
Most febrile convulsions will be over by the time the doctor sees the patient. If still fitting treat as described in "Management of Status Epilepticus" Guideline 1.19

II. Clinical assessment
Must include:

- a good history, including eye witness account of the seizure where possible and the seizure must be identified as a febrile seizure including by accepting parental reports of perception of fever and by ruling out alternative diagnosis such as rigors, breath-holding, syncope etc.
- a thorough search for the focus of infection and to rule out serious underlying causes such as meningitis and encephalitis
- assessment of neurological status (including level of consciousness, any focal neurological deficit and head circumference),
- a measurement of BP.

III. Investigations
Investigations are not routinely indicated but may be needed to look for source of infection
a. A’ blood glucose should be measured in all cases There are no other routine investigations. Look for a focus of infection and send off appropriate tests as necessary. Urine examination and chest X-ray should be considered if no obvious cause of infection.
b. Lumbar puncture (LP) should be performed if there are signs of meningitis (refer to Bacterial Meningitis Guideline) 6.5 irritability or the child is systemically unwell. LP should be considered and discussed with an experienced doctor (ST4+) in all children under 18 months. Under 12 months it must be seriously considered and if it is not done clinical review must be undertaken within a few hours. LP should also be considered if a complex febrile convolution or if no focus of infection is found.

Contraindications to LP:
Reduced conscious level
Septic Shock
Likely invasive meningococcal disease
Signs of raised ICP
Focal neurology
Bleeding tendency
An experienced doctor (ST4+) should review before L.P.

c. EEG and CT are not helpful in most cases.

IV. The parents
In the majority of cases the convulsion is benign and the prognosis is excellent. However, many parents witnessing their child's first convulsion think their child is going to die so parental counselling is probably the most important part of the management.

- Explanation of the nature and prognosis of febrile convulsions.
- Instructions about management of fever, further convulsions and if necessary the use of rectal diazepam/buccal midazolam.
- Reassurance and febrile convulsion leaflet.

Advise parents that:
- Febrile convulsions are not the same as epilepsy
- Short lived seizures are not harmful
- 1 in 3 will have another febrile convulsion
- On the management of further seizures and when to seek advice
- To continue immunisations even if the febrile convulsion was after receiving immunisations

V. The fever
Tepid sponging, cool baths or fanning may cause discomfort and cause peripheral vasoconstriction and increase the core temperature. They are therefore not recommended.

Ensure adequate fluid intake.
Paracetamol is an effective antipyretic drug (15mg/kg 4-6 hourly - maximum 4 doses in 24 hours).

E. ANTICONVULSANT PROPHYLAXIS
There is no evidence that using anticonvulsants will prevent the development of epilepsy. Prophylaxis is rarely indicated in neurologically normal children.

If a child is at risk of complex convulsions, buccal midazolam can be issued to the parents with detailed instructions for use after discussion with the child's consultant.

Training must be given by nursing staff on the ward on the use of buccal midazolam prior to discharge.

The use of midazolam to be given with the onset of a pyrexial illness is not
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recommended.

Advise parents to use midazolam for a seizure lasting > 5 minutes, as most convulsions will be over by then and emphasise that it is not to be given after the convulsion has stopped.

Buccal Midazolam:

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<thead>
<tr>
<th>Age Range</th>
<th>Dose</th>
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<tbody>
<tr>
<td>&gt;6 months to &lt;1 year</td>
<td>2.5mg</td>
</tr>
<tr>
<td>1 year to &lt;5 years</td>
<td>5mg</td>
</tr>
<tr>
<td>5 years to &lt;10 years</td>
<td>7.5mg</td>
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Follow up
Follow up should be considered in atypical or prolonged febrile convulsions

3. References