Title: '**Seizure(s) with Fever'**
Version: 1.0
Date: April 2011
Review: April 2014
Author: Kiran Damera, Specialist Registrar
Contributors: Colin Dunkley, Katherine Martin, William Whitehouse, Mal Ratnayaka, Rachael Wheway, Catie Picton, Ann Brown, Kirsten Johnson
Approval: CEWT (Children's Epilepsy Workstream in Trent)

Scope
Children and young people presenting with 'seizure with fever' to acute paediatric services

Definitions and background
'Fever':
Definition: Recorded temperature >37.8 or perceived to have fever by parents/carers around time of seizure

'Febrile Seizures': (Sometimes termed 'Febrile Convulsion')
Definition:
An event in infancy or childhood between 6 months and 5 years of age (peak age 20 months) associated with fever but without evidence of intracranial infection or defined cause of seizure. Population studies report a cumulative incidence of 2–5%.[1]

Risk Factors:
- Previous febrile seizure
- Family history (first degree relative): 10 - 45%

Types of febrile seizures:
- Simple Febrile Seizures: A single generalised (no focal features) seizure lasting <15 min
- Complex Febrile Seizures: Multiple seizures in same illness or prolonged > 15 min or focal features.

Acute symptomatic seizures with fever
Other conditions can cause seizure associated with fever. These include
- Intracranial infections (e.g. meningitis/encephalitis),
- Metabolic or neurodegenerative disease.

Epilepsy with fever-related seizures
Seizures can be precipitated by fever in children with a known epilepsy

Other situations e.g. Fever with rigors
There are other types of episode occurring with fever that may need to be considered

References

1. Febrile seizures: an update. C Waruiru, R Appleton Arch Dis Child 2004; 89:751-756
2. The epilepsies: diagnosis and management of the epilepsies in children and young people in primary and secondary care. *National Institute for Clinical Excellence (NICE) Clinical Guideline* 20, October 2004.
3. K Armon, T Stephenson, R MacFaul, P Hemingway, U Werneke and S Smith. Childhood Seizure Guideline An evidence and consensus based guideline for the management of a child after a seizure. Emerg Med J 2003; *20*:13-20
4. Paediatric Accident and Emergency Research Group. Management of the Child with a Decreased Conscious Level. An Evidence Based Guideline. (http://www.nottingham.ac.uk/paediatric-guideline/recdoc.pdf)
5. CEWT Guideline Framework www.cewt.org.uk

Feverish illness in Children. National Institute for Clinical Excellence (NICE) Clinical Guideline 47. May 2007

Date: April 2011 Review: April 2014

CEWT

Seizure(s) with Fever

Continuing convulsive seizure > 5 minutes?

Yes → **Prolonged Convulsive Seizure Guideline[5]**

No

Decreased conscious level?
- Before seizure onset
- Or > 1 hour after seizure end
- Or longer than typical post-ictal period for child in question

Yes → **Reduced Conscious Level Guideline[4]**

No

'Meningism or Meningococcal shock?'

Yes → **Meningitis /Meningococcal Sepsis Guidelines**

No

Concerning Features?*

Yes → **Further Paediatric Assessment**
- History and examination
- Identify source of fever, investigate & treat according to NICE feverish illness guidelines
- Paracetomol and/or ibuprofen prn
- Routine investigations are not indicated in all children with febrile seizures
- Consider LP if 'concerning features'* (note contraindications)
- Senior review prior to discharge
- Minimum 2 hours observations
- Care for any child may need supplementing with other guidelines e.g.
  - Petechial rash
  - Urinary Tract Infection
  - Chest Infection
  - Diarrhoea and Vomiting
  - Bone and Joint Infection

Once fit for discharge:
- Discuss risk of future seizures
- Consider home Buccal Midazolam if prolonged convulsive seizure >10 minutes. Ensure prescribed with individualised care plan and appropriate parental training.
- Febrile seizure and fever management advice and written information

No

First Febrile Seizure? OR No clear focus of infection? OR Parental concern?

Yes → **Further Paediatric Assessment** (as above)

No

Known or suspected epilepsy?

Yes →
- Review epilepsy and management
- Inform epilepsy specialist nurse
- Review need for admission or earlier outpatient appointment
- The management of epilepsy is outside scope of this guideline[2]

No

Previous 'febrile seizures' AND Focus of infection identified AND No significant parental concern

Yes →
- Manage according to cause
- Consider discharge
- Discuss risk of future seizures
- Febrile seizure and fever management advice and written information

LUMBAR PUNCTURE

A lumbar puncture should be deferred or not performed as part of the initial acute management in a child who has:

- GCS ≤ 8
- deteriorating GCS
- focal neurological signs
- had a seizure lasting more than 10 mins and still has a GCS ≤ 12
- abnormal breathing pattern
- abnormal doll's eye response
- abnormal posture
- shock
- bradycardia (heart rate <60)
- hypertension (BP >95th centile for age)
- clinical evidence of systemic meningococcal disease
- pupillary dilatation (unilateral / bilateral)
- pupillary reaction to light impaired or lost
- signs of raised ICP

A normal CT scan does not exclude acutely raised ICP

Reproduced from RCPCH Reduced Conscious Level Guideline[4]

***Concerning Features:**
- Complex febrile seizures
  - Multiple seizures in same illness
  - Prolonged >15 min
  - Focal features
- Infant < 18 months
- Prior treatment with antibiotics
- Drowsy before the seizure
- More than 3 days illness
- GP contact in last 24 hrs
- Vomiting at home
- Drowsy > 1 hr post seizure
- Neck stiffness
- Petechial rash
- Bulging fontanelle
- Hypertension

www.cewt.org.uk