THE FITTING CHILD

Stop the fit, remembering that it is a manifestation of another problem

Ensure safety and abort the fit

**Step 1: Airway**

1. Ensure a patent airway
2. Give 100% oxygen by face mask and monitor oxygen saturation
3. If the child is not breathing adequately, assist with bag-mask ventilation

**Step 2: Abort the fit**

If there is IV or intra-osseous (IO) access:

- Give LORAZEPAM 0.1mg/kg IV/IO over a few minutes, or
- Give DIAZEPAM 0.3mg/kg (max 10 mg) IV/IO over a few minutes

*Rapid administration of benzodiazepines WILL result in respiratory arrest. Assist with bag-mask ventilation until child starts breathing again*

If there is no IV access:

- Give rectal DIAZEPAM 0.5mg/kg, or
- Give buccal MIDAZOLAM 0.5mg/kg

*NEVER give diazepam IM, as bioavailability is unpredictable*

Also:

- If the child is on anticonvulsant therapy, take blood for anticonvulsant level
- Check the blood sugar level: if low, start a ½ DD infusion
- Check the blood pressure as soon as the fit is aborted

**Step 3: Benzodiazepine REPEAT**

If seizures do not stop after another 10 minutes:

- Repeat LORAZEPAM 0.1mg IV/IO slowly, or
- Repeat DIAZEPAM 0.3mg/kg IV/IO slowly

**Step 4: Phenobarbitone IV/IO (go to step 5 if on oral phenobarbitone, or if IV phenobarbitone is not available)**

If seizures do not stop after another 10 minutes:

- Give PHENOBARBITONE 20mg/kg IV/IO over 5-10 minutes
- If fit does not stop after another 10 minutes, give PHENOBARBITONE 10mg/kg IV/IO over 5-10 minutes
- Repeat PHENOBARBITONE 10mg/kg IV/IO over 5-10 minutes if still fitting after a further 10 minutes

*Phenobarbitone and benzodiazepines can depress respiration. Adequacy of respiratory effort MUST be continuously assessed during phenobarbitone administration. Respiration must be supported as necessary. In practice, children usually tolerate up to 40mg/kg without requiring ventilatory support*

**Step 5: Phenytoin**

If seizures continue and if the patient is not already on oral phenytoin:

- Give PHENYTOIN 20mg/kg in 5ml/kg normal saline over 30 minutes
- Do not give if the child is known to be on maintenance phenytoin
- Contact a PICU while phenytoin in progress

**Step 6: Telephone a Paediatric ICU**

If seizures do not stop after the phenytoin infusion, the safest option in our setting is to induce a phenobarbitone coma:

- The child will need intubation and mechanical ventilation
- Discuss admission/transfer and intubation timing with the Greys PICU registrar or consultant
- If induced coma is indicated:
  - Intubate and ventilate
  - Load with PHENOBARBITONE 10mg/kg half hourly to maximum of 100mg/kg until seizures are controlled
  - Monitor closely for hypotension and provide volume expander at 10-20ml/kg PRN fast
  - Start neuro-protective manoeuvres: raise head of bed 30°, mannitol 0.5-1g/kg IV bolus; keep pCO₂ 4-4.5 kp; treat for bacterial, viral, TB meningitis (as indicated); control temperature and blood glucose; restrict fluids to 80% usual maintenance for age/weight
Try to establish the cause of the fit

Possible Causes

Infancy and early childhood
1) Commonest: febrile convulsions
2) More serious: meningitis and encephalitis
3) Brain damage and defects
4) Metabolic abnormalities

Over 5 years
1) Commonest: idiopathic epilepsy
2) Neurocysticercosis
3) Meningitis / encephalitis
4) Brain damage
5) Metabolic abnormalities

Take a history:
1) The current context: fever, vomiting, drowsiness, behaviour
2) The fit: generalised or focal (at onset), tonic/clonic or other (describe), alteration of consciousness, incontinence of urine and/or faeces, duration
3) The background context: perinatal history, developmental history, family history, past medical history (especially previous fits and medication)

Do an examination:
1) Did you check the blood pressure?
2) Look for: fever and its cause, neck stiffness, depressed level of consciousness, focal signs, middle ear disease

Investigate: fit for the first time
1) Did you check the blood sugar?
2) U&E, albumin, Ca & Mg, FBC, blood culture
3) A LUMBAR PUNCTURE must be done unless contraindicated by focal signs or signs of raised intracranial pressure (i.e. alteration in consciousness)
   
   A lumbar puncture may not be necessary IF there are no features of meningitis AND the child is over 2 years of age

4) Refer for an URGENT CT scan if:
   ○ There is a persistently depressed level of consciousness +/- focal signs
   ○ Otorrhoea is thought to be related to the fit

5) Refer for elective CT scan if:
   ○ The fit is focal or there are localising signs
   ○ The fit is prolonged
   ○ Seizures are recurrent
   
   An ultrasound can be done if the fontanelle is open

6) Refer for EEG if:
   ○ Suspected absence attacks
   ○ Uncertainty about whether the child has had a convulsion (post-ictal slowing supports the diagnosis of a seizure)
   ○ Myoclonic epilepsy
   ○ Ideally, all children with recurrent seizures should have an EEG

Investigate: Fit for a subsequent time
1) Did you check the blood sugar and blood pressure?
2) Lumbar puncture if symptoms or signs suggest meningitis

Investigate: BREAKTHROUGH seizure on medication
1) Did you check the blood sugar and blood pressure?
2) A drug level should be done at presentation (i.e. before further doses of the relevant anticonvulsant)

NEVER write up “prn valium” in a child who has fitted. If the child fits again, she/he MUST be re-assessed by a doctor at the bedside.

All children with complex/unusual/recurrent seizures must be seen assessed and management optimised at Greys Hospital Neurodevelopment Clinic