Resuscitation Council UK

GUIDELINES 2025

Treating convulsive status epilepticus in children

SEIZURE STARTS — Management

- Confirm clinically.
- Check ABC, high-flow O_2, attach monitoring, IV/IO access.
- Check blood glucose, treat < 2 mmol L^{-1}
- Treat underlying cause: infection, intoxication, intracranial hypertension, electrolyte disorder, channelopathies.

5 MIN — 1st line agents

- Consider pre-hospital treatment already given: 2 doses of benzodiazepines max.
  - **midazolam 0.3 mg kg^{-1}** buccal or intranasal 0.2 mg kg^{-1} IM (max 10 mg) (see BNFc for exact age related dose).
  - **diazepam 0.5 mg kg^{-1}** rectal (max 20 mg).

IF IV/IO access: OR **lorazepam** 0.1 mg kg^{-1} IV/IO (max 4 mg).
OR **midazolam** 0.15 mg kg^{-1} IV/IO (max 10 mg).

10 MIN

- Reassess, give 2nd dose.
  - **Lorazepam** 0.1 mg kg^{-1} IV/IO (max 4 mg)

OR **Midazolam** 0.15 mg kg^{-1} IV/IO (max 10 mg).

Reconfirm epileptic seizure and prepare 2nd line agent of choice for next step.

15–20 MIN — 2nd line agents

- **Levetiracetam** 40–60 mg kg^{-1} IV over 5 min, (max 4.5 g)

If Levetiracetam is **not** available use:

- **phenytoin*** 20 mg kg^{-1} IV over 20 min (max 1.5 g with ECG monitoring)

OR **phenobarbital** 20 mg kg^{-1} IV max 1 mg kg^{-1} min^{-1} (max 1 g)

OR **valproid acid**** 40 mg kg^{-1} IV over 15 min (max 3 g)

Call anaesthetist and PICU

30–40 MIN — 3rd line agents

- If preparation for deeper anaethesia with I+V complete, proceed to next step.

OR Administer further alternative second-line drug (levetiracetam, phenytoin, phenobarbitol).

No later than 40 MIN

Emergency anaesthesia using either:

- ketamine
- thiopental
- propofol
- midazolam

With single dose rocuronium if using NMB

- Consult paediatric neurologist
  - EEG monitoring.
  - Consider brain imaging.
  - Monitor for complications, e.g. respiratory and haemodynamic instability, renal dysfunction, metabolic disturbances, and adverse drug effects.

- Definition of convulsive status epilepticus (CSE) is a seizure that continues for greater than 5 min, so treatment usually starts once seizure has lasted > 5 min.
- After 5 min seizures are unlikely to spontaneously terminate.
- The risk of a seizure becoming refractory increases with increasing seizure duration.
- Children who frequently have seizures or CSE usually have an individually tailored guideline.
- Do not give phenytoin too rapidly as it will cause bradycardia and/or asystole.
- In sepsis consider measuring calcium and magnesium levels as they are sometimes low.
- Monitor glucose aim for 4-8 mmol L^{-1}.
- Measure serum sodium and treat if < 125 mmol L^{-1} (3 mL kg^{-1} 3% sodium chloride).
- Consider temperature control measures if hyperthermic.
- Consider meningitis, encephalitis and Raised ICP.
- Consider CNS haemorrhage if signs of trauma.
- There is no evidence for the ideal third line agent: thiopentone, propofol, ketamine and midazolam may all be used.

https://www.nice.org.uk/guidance/ng217 Epilepsies in children, young people and adults. NICE guidelines NG217 (updated Apr 2022)

* **Phenytoin:** monitor ECG and BP, caution with cardiopathies, arrhythmias and AV blocks.

** **Valproic** acid should be avoided in pregnant teenagers, suspected liver failure or metabolic disease.