Convulsive status epilepticus is defined as a convulsive seizure which continues for a prolonged period (longer than five minutes), or when convulsive seizures occur one after the other with no recovery between. Convulsive status epilepticus is an emergency and requires immediate medical attention. Non-convulsive status epilepticus is uncommon and management is less urgent.\[^1\]

**Epidemiology**

- Estimated incidence is between 10 and 60 cases per 100,000 person/years.\[^2\] The incidence is higher in poorer populations. It recurs in about a third of patients.\[^3\]
- Risk factors include age under 5 years or elderly age, genetic predisposition, intellectual disability and structural brain pathology.
- Potential precipitants include drug withdrawal, intercurrent illness, metabolic disturbance (e.g., hypoglycaemia), cerebrovascular event and alcohol intoxication or withdrawal.

**Presentation**

This would be the same as any convolution but unremitting. The diagnosis of tonic-clonic status is usually clear, although it needs to be distinguished from pseudo-status epilepticus which is non-epileptic attacks with a psychological basis.

**Differential diagnosis**

Non-epileptic status should be considered. See the separate Non-epileptic Seizures article.

**Management\[^1\]**

- Give immediate emergency care and treatment for prolonged (lasting five minutes or more) or repeated (three or more in an hour) convulsive seizures in the community.
- Treatment should be administered by trained clinical personnel or, if specified by an individually agreed protocol drawn up with the specialist, by family members or carers with appropriate training.

**First-line treatment in the community**

- General protective measures - e.g., ensuring the head is protected, releasing any constricting neck wear, moving away from a dangerous position.
- Resuscitation as required: secure the airway and assess respiratory and cardiac function.
- Use buccal midazolam as first-line treatment for prolonged or repeated seizures in the community. Administer rectal diazepam if preferred or if buccal midazolam is not available.
- If intravenous (IV) access is established and resuscitation facilities are available, administer IV lorazepam.
- Depending on response to treatment, the person’s situation and any personalised care plan, call an ambulance, particularly if:
  - The seizure is continuing five minutes after the emergency medication has been administered.
  - The person has a history of frequent episodes of serial seizures or has convulsive status epilepticus.
  - This is the first episode requiring emergency treatment.
  - There are concerns or difficulties monitoring the person’s airway, breathing, circulation or other vital signs.
Treatment in hospital

- Immediately:
  - Secure airway, give high-concentration oxygen.
  - Assess cardiac and respiratory function, check blood glucose levels and secure IV access in a large vein.
  - Administer IV lorazepam as first-line treatment. Administer IV diazepam if IV lorazepam is unavailable, or buccal midazolam if unable to secure immediate IV access. Administer a maximum of two doses of the first-line treatment (including pre-hospital treatment).
  - If seizures continue, administer IV phenobarbital or phenytoin as second-line treatment. Fosphenytoin (a prodrug of phenobarbital) can be given more rapidly and, when given intravenously, causes fewer injection-site reactions than phenytoin. [38703: British National Formulary remove]

- Refractory convulsive status epilepticus:
  - Administer IV midazolam, propofol or thiopental sodium to treat adults with refractory convulsive status epilepticus. Administer IV midazolam or thiopental sodium to treat children and young people with refractory convulsive status epilepticus.
  - Adequate monitoring, including blood levels of anti-epileptic drugs (AEDs), and critical life systems support are required.

Emergency investigations in hospital

- Pulse oximetry; blood gases.
- Blood for glucose, renal function, electrolytes, liver function, calcium and magnesium; FBC and clotting; AED levels.
- 5 ml of serum and 50 ml of urine samples should be saved for future analysis, including toxicology, especially if the cause of the status epilepticus is uncertain.

Other therapy

- Correct hypoglycaemia if present.
- Parenteral thiamine should be considered if alcohol abuse is suspected.
- Pyridoxine (vitamin B6) should be given if the status epilepticus is caused by pyridoxine deficiency.

Further management

- Identify and treat any underlying cause. Status is associated with community-acquired bacterial meningitis and seizures. Seizures occurring in the acute phase of the illness are predictors of poor outcome. [4]
- Identify and treat medical complications - eg, CXR to evaluate the possibility of aspiration.
- Regular AEDs should be continued at optimal doses and the reasons for status epilepticus should be investigated.
- An individual treatment pathway should be formulated for children, young people and adults who have recurrent convulsive status epilepticus.
- Only prescribe buccal midazolam or rectal diazepam for use in the community if there has been a previous episode of prolonged or serial convulsive seizures.

Non-convulsive status epilepticus in adults and children [1, 5]

This is less common than tonic-clonic status epilepticus. Treatment for non-convulsive status epilepticus is less urgent than for convulsive status epilepticus. Non-convulsive status (eg, absence status or continuous focal seizures with preservation of consciousness) may be difficult to diagnose. In non-comatose patients it may present as confusion, personality change or psychosis. Treatment should be considered as follows:

- Maintenance or reinstatement of usual oral anti-epileptic therapy.
- Consider benzodiazepine treatment (midazolam 10 mg buccally or intranasally, lorazepam 4 mg IV, or diazepam 10 mg IV)
- Use of IV benzodiazepines under electroencephalographic (EEG) control, particularly if the diagnosis is not established.
- Referral for specialist advice and/or EEG monitoring.
Prognosis

- Aetiology and conscious level predict outcome. At initial evaluation, older age and marked impairment of consciousness are associated with increased mortality.
- One study found a mortality of 15% and a recurrence of status epilepticus of approximately 10% during the study period.

Prevention

Good seizure control in pre-existing epilepsy.

Further reading & references

- British National Formulary for Children; NICE Evidence Services (UK access only)
- Epilepsy; NICE CKS, December 2014 (UK access only)
- Epilepsy Action
- Epilepsy Society
- Epilepsy Scotland
- Epilepsy Wales

1. Epilepsies: diagnosis and management; NICE Clinical Guideline (January 2012)
5. Diagnosis and management of epilepsy in adults; Scottish Intercollegiate Guidelines Network - SIGN (2015)

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