Carbamazepine (CBZ)

Overdose may cause neurological and cardiovascular toxicity. Multi-dose activated charcoal (MDAC) enhances carbamazepine elimination.

Toxicity / Risk Assessment

Onset of severe clinical toxicity can be delayed

One 400 mg tablet may cause severe toxicity in a child

Predicted toxicity by dose or serum concentration:

Symptom severity	*Dose ingested (mg/kg)*	*Concentration in umol/L (mg/L)*
Mild/none	<20	Up to 85 (20)
Moderate	20-50	85-170 (20-40)
Severe	>50	>170 (>40)

Clinical features:

Mild: drowsiness, nystagmus, tachycardia, dry mouth, ataxia, dysarthria

Moderate: increasing sedation, delirium with intermittent agitation, urinary retention (rare)

Severe: coma, hypotension, arrhythmias, seizures, respiratory depression, ileus

CVS toxicity: may include ↓BP, ↑QRS (Na channel blockade), ventricular arrhythmias

Large CBZ ingestions with high serum concentrations may produce clinically significant anticholinergic toxicity, including delayed GI absorption

Management: primarily supportive; intubation may be required in cases of significant CNS depression

Decontamination:

Activated Charcoal 50 g (Paediatric: 1g/kg) should be given for ingestion >20 mg/kg in awake patients

Patients who require intubation should receive activated charcoal 50 g via confirmed NGT

Investigations: symptomatic patients: check serum CBZ concentration 4-6 hourly until consistently falling

Hypotension – treat initially with 20 mL/kg IV crystalloid

Wide QRS and Na channel blockade (variable response to 8.4% $NaHCO_3$) – discuss with clinical toxicologist

- Refer to *Serum Alkalinisation* guideline

Seizures – Benzodiazepines: Diazepam 5mg IV every 5 minutes as necessary

Enhanced elimination ***(Discuss with clinical toxicologist)***

- **Multi-dose activated charcoal (MDAC)** for ingestions >50mg/kg with signs of clinical toxicity

  Do not administer to patients with an ileus (see separate MDAC guideline)

- **Extracorporeal elimination**: high flux haemodialysis /charcoal haemoperfusion are preferred modalities

  Indications*: May be beneficial in severe toxicity (refractory seizures / CVS instability) or conc. > 250 umol/L*

  Endpoint of extracorporeal elimination: ↓serum CBZ concentrations with consistent clinical improvement

Disposition

- Discharge pending mental health assessment if asymptomatic with normal observations at:

  6 hours if < 50 mg/kg ingested OR 12 hours if > 50 mg/kg ingested

- Advise patients not to drive for at least 72 hours post exposure