Phenytoin

Absorption is slow and erratic, with delayed peak concentrations up to 1-2 days post ingestion. Toxicity can produce ataxia with a risk of falls.

Toxicity / Risk Assessment

> 20 mg/kg: mild GI upset, CNS effects, esp. cerebellar

> 100 mg/kg: coma and seizures

Phenytoin exhibits zero order elimination kinetics (this can lead to a prolonged half-life in overdose)

Rapid IV injection can cause bradycardia, hypotension, arrhythmias. These are due to propylene glycol diluent

Accumulation and clinical toxicity is possible following dose changes and introduction of new medications

Ingestions < 20mg/kg are unlikely to produce significant toxicity

Clinical features:

Phenytoin concentrations correlate with toxicity:

- >20mg/L (80 µmol/L): nystagmus, GI symptoms
- 30-40mg/L (120-160 µmol/L): ataxia, N+V, bradycardia hyperreflexia, dysarthria, drowsiness, ophthalmoplegia
- > 50mg/L (>200 µmol/L): cerebellar toxicity, coma, seizures

Hypernatraemia

Cerebellar ataxia (may lead to significant falls risk)

Management

Mainstay is supportive care. Serial phenytoin concentrations may guide further management.

Decontamination:

Activated charcoal (50 g in adults, 1 g/kg in children) should be offered to awake, cooperative patients within 4 hours following acute ingestion of >20mg/kg

Multi-dose activated charcoal may enhance elimination of phenytoin and should be considered in patients with severe clinical features (please discuss with clinical toxicologist)

Antidotes: Nil available.

Indications for Haemodialysis: Discuss with clinical toxicologist

Prolonged coma expected

Refractory seizures

Should NOT be solely based on suspected dose ingested or serum phenytoin concentration

Disposition

- Patients can be medically discharged once asymptomatic (including resolution of ataxia and sedation)
- Observe at least 6 hours following acute ingestion
- Do not drive or operate heavy machinery for at least 3 days post discharge