# Quinine

Initial toxicity includes vomiting, tinnitus, vertigo and hearing loss. Large ingestions may lead to visual loss, seizures, coma and cardiovascular dysfunction.

## Toxicity / Risk Assessment

> 1g: typically produces mild-moderate toxicity

> 5 g: CVS, CNS and retinal toxicity more likely

> 10 g: CVS, CNS, retinal toxicity almost universal

**Clinical features:**

Cinchonism is a term used to describe the clinical features of quinine toxicity

Onset of clinical features occurs within hours, but visual toxicity may be delayed > 8 hours

**Mild cinchonism**: flushing, diaphoresis, tinnitus, nausea & vomiting, vertigo, hearing impairment

**Severe toxicity**:

**CVS**: (usually within 8 hours) hypotension, tachycardia, ↑QRS / ↑QT intervals, arrhythmias

**CNS**: confusion, drowsiness, seizures, coma

**Retinal toxicity**: may be delayed > 8 hours

- Blurred vision, altered colour perception, ↓ visual fields
- Blindness (can be permanent)
- Recovery may be slow (weeks)

**Metabolic**: ↓ BSL (insulin release), ↓ $K^+$ (intracellular shift)

## Management

Aggressive supportive care is the mainstay of management.

Consider early intubation if ingested dose > 5 g (discuss with clinical toxicologist)

**Decontamination:** Activated charcoal (AC) 50 g should be administered to awake patients within 2 hours of a reported ingestion > 1 g. Intubated patients should receive AC via a nasogastric tube.

**Fluid & Electrolytes:**

IV fluid replacement if dehydrated from vomiting or as initial treatment of hypotension

If ↓K, **replace with caution**. Aim $K^+$ 3.0-3.5 mmol/L as ↓$K^+$ is due to intracellular shift & not $K^+$ loss.

**Hypotension:** manage initially with 20-30 mL/kg IV crystalloid

**Seizures:** Diazepam 5 mg IV every 5 minutes as necessary

**Visual disturbance:** there is no specific proven antidote or intervention

**Management of ↑ QT interval:** See separate ***Prolonged QT interval / TdP*** guideline

**Ventricular arrhythmias / Na+ channel blockade**

- Often poorly responsive to NaHCO3 therefore discuss all cases with a clinical toxicologist
- Maintain serum $K^+$, $Mg^{2+}$ and $Ca^{2+}$ concentrations in normal range

**Enhanced Elimination:** consider MDAC (see separate guideline) for patients with severe toxicity or visual symptoms (please discuss with clinical toxicologist). Quinine is not dialyzable.

**Disposition:**

Discharge pending mental health assessment if asymptomatic and normal ECG 6 hours post ingestion

Ensure ophthalmology review and follow-up for patients with visual symptoms