

Propranolol and sotalol overdose can produce life-threatening cardiovascular toxicity.

Toxicity / Risk Assessment

Onset of effects usually occur within 1-2 hours

*Onset of effects for **Metoprolol MR** may be delayed*

*Ingestion >1- 2 g **Propranolol** may cause significant toxicity, usually within 6 hours*

Lone ingestion of other BB: significant toxicity unlikely

Likelihood of toxicity increases with: underlying CVS disease, elderly, co-ingestion of other –ve inotropes (CCBs)

No medical treatment required if patient is well AND has normal ECG 6 hours post ingestion

Clinical features:

- CVS: ↓HR and ↓BP.

↑PR may be first sign of CVS toxicity.

Increasing AV block progressing to complete heart block, CVS collapse, pulmonary oedema.

- Other: ↓glucose, ↑K⁺

- Sotalol: ↑QT, ↓HR, TdP

- Propranolol: ↑QRS, ventricular arrhythmias, delirium, coma, seizures

Management - Treat ↓BP in graduated, but aggressive manner. Early echocardiogram may guide Rx

Activated charcoal: offer up to 2 hours post ingestion (4 hours if MR preparation)

Bradycardia

Atropine: 0.6 mg IV boluses q5 minutely up to 3 doses (child 0.02 mg/kg boluses)

Epinephrine: 10-20 mcg bolus (child 0.1 mcg/kg) q2-3 min until adequate perfusion

(Isoprenaline: is an alternative chronotrope but can exacerbate hypotension)

Electrical pacing is the definitive treatment if pharmacological chronotropy fails

Hypotension

Fluid: Initially load with 10-20 mL/kg IV crystalloid. Further IV fluid may lead to pulmonary oedema

Epinephrine: 10-20 mcg bolus (child 0.1 mcg/kg) q2-3 min until adequate perfusion, then infusion

If no response to epinephrine and fluid consider **High Dose Insulin-Euglycaemia Therapy (HIET)** or other inotropes/pressors but seek expert advice from a Clinical Toxicologist.

Refractory Hypotension: (refractory to epinephrine, fluid, HIET, other inotropes/pressors)

Mechanical: consider early IABP or Extra-Corporeal Life Support (ECLS) interventions

Wide QRS and Na channel blockade (propranolol):

Role of NaHCO₃ is unclear; discuss with clinical toxicologist if QRS > 120 ms

↑ QT Interval (sotalol): CVS monitor + maintain normal serum Ca²⁺, K⁺, Mg²⁺ concentrations

Management of TdP: MgSO₄ 10 mmol (2 grams) as IV push (if pulseless: electrical defibrillation) and maintain HR > 80 bpm with isoprenaline/epinephrine or with electrical pacing

Observation for deliberate self harm or 2x daily dose – minimum 6 hours (12 hours if MR)