

**Propranolol and sotalol overdose are more likely to produce life-threatening cardiovascular toxicity compared to other beta-blockers.**

## Toxicity / Risk Assessment

*Ingestion >2 g Propranolol or > 1g Sotalol is likely to cause significant toxicity*

*Onset of effects usually occurs within 1-2 hours*

*Onset of effects for Metoprolol MR may be delayed*

**Likelihood of toxicity increases with:** underlying CVS disease, elderly, co-ingestion of other -ve inotropes/chronotropes

## Clinical features:

- CVS: ↓HR and ↓BP. ↑PR interval on ECG may be first sign of CVS toxicity. Increasing AV block progressing to complete heart block, CVS collapse, pulmonary oedema

**Sotalol:** ↑QT, ↓HR, Torsades des Pointes (TdP)

**Propranolol:** ↑QRS, ventricular arrhythmias, delirium, coma, seizures (usually within first 2 hours)

- Other: ↓glucose, ↑K<sup>+</sup>

**Management** - Treat hypotension using graduated approach. Early echocardiogram may guide Rx

## Bradycardia

- **Atropine:** 0.6 mg (0.02 mg/kg children, up to 0.6 mg) IV bolus and repeat 15 minutely up to 1.8 mg

- **Adrenaline infusion:** commence at 0.05-0.1 mcg/kg/minute and titrate up as required to response (**Isoprenaline:** is an alternative chronotrope but can exacerbate hypotension)

Electrical pacing is the definitive treatment if pharmacological Rx of negative chronotropy fails

**Hypotension** Treat hypotension using graduated approach. Early echocardiogram may guide Rx

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

**Adrenaline:** titrate infusion to achieve MAP 65 mmHg

If inadequate response to epinephrine and fluid with evidence of pump failure: consider HIET (High-dose Insulin Euglycaemic Therapy) OR if evidence of vasoplegia, commence noradrenaline +/- vasopressin.

Seek advice from a Clinical Toxicologist.

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

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

## Wide QRS and Na<sup>+</sup> channel blockade (Propranolol):

Role of NaHCO<sub>3</sub> is unclear, discuss with Clinical Toxicologist if QRS > 120 ms

## Seizures:

Correct hypoglycaemia and administer benzodiazepine (diazepam 5mg IV 5 minutely as necessary)

**↑QT Interval + TdP (Sotalol):** See separate QT prolongation guideline

**Disposition:** Discharge pending mental health assessment if asymptomatic + normal ECG 6 hours post ingestion (12 hours if MR preparation)