CALCIUM CHANNEL BLOCKER TREATMENT ALGORITHM

Signs and Symptoms of Calcium Channel Blocker (CCB) toxicity:
Bradycardia (<50 bpm), hypotension (SBP <90 mmHG or MAP<65 mmHg),
low cardiac index (<2.2 L/min/m^2), abnormal peripheral vascular resistance
All patients require continuous cardiac monitoring.

YES

Simultaneous treatments may be necessary.

Fluids:
Titrate based on response, suggested start:
Adult: 1-2 L NS bolus
Pediatric 10-20 mL/kg NS bolus

NO

Continue to monitor

Calcium:
Indicated in any symptomatic CCB toxicity. Tends to improve conduction disturbances more than hypotension.
Serum calcium must be monitored q1h while receiving calcium bolus therapy, or at a minimum BID while on continuous infusion.

Adult Dose of Calcium:
Calcium Chloride (10%)
Bolus: 10-20 mL (10%) (or 1-2 g) q10-20 min as required; or
infusion: 0.2-0.4 mL/kg/h
or
Calcium Gluconate (10%)
Bolus: 30-60 mL (or 3-6g) q10-20 min as required; or
infusion: 0.6-1.2 mL/kg/h

Pediatric Dose of Calcium:
Calcium Chloride (10%)
Bolus: 0.1-0.2 mL/kg q10-20 min as clinically required; or
infusion: 0.1-0.2 mL/kg/h
or
Calcium Gluconate (10%)
Bolus: 0.3-0.6 mL/kg q10-20 min as clinically required; or
Infusion: 0.3-0.6 mL/kg/h

Atropine:
Atropine should still be considered as initial treatment for symptomatic bradycardia or conduction disturbances, but failure with this drug may be expected.

Adult Dose Atropine:
0.5 - 1mg IV
Repeat q 3 - 5 min to total dose 3 mg

Pediatric Dose Atropine:
0.02 mg/kg IV
Child: minimum 0.1 mg IV; maximum single dose 0.5 mg
Adolescent: 1 mg IV; may repeat once in 5 minutes

High Dose Insulin Euglycemia Therapy
See Poison Centre taxable sheet for initiation, titration, and monitoring guidelines.

Vasopressors:*
No single agent has been consistently shown to be effective.
Norepinephrine or epinephrine are preferred due to their vasoconstricting effects.
Dopamine and vasopressin are not recommended.
Dobutamine may be considered if patient presenting with myocardial dysfunction/cardiogenic shock; should not be considered in other cases due to risk of hypotension.
*Note: High doses may be required.

Refractory to first line treatments:
Contact Poison Centre for consideration of other treatments such as incremental doses of High Dose Insulin Euglycemia Therapy, Lipid Resuscitation Therapy (see Poison Centre taxable sheet for details), pacemaker, ECMO.

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Faxable sheet