| **Medication:** Calcium Chloride | **PDN:** 6912.04 | **Last Updated:** March 7 2023 | **PMD:** Andrew Travers* | **PDC:** Tanya Fraser* | Page 1 of 2 |
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# CALCIUM CHLORIDE

## 1.0 Classification

- Electrolyte

## 2.0 Mechanism of Action

- Increases myocardial contractility and ventricular automaticity.
- Stabilizes overly excited myocardial cells in the presence of hyperkalemia. Increased extracellular potassium causes the cellular membrane action potential to decrease which may lead to ECG changes and pre-excitation arrhythmias.

## 3.0 Indications

- Cardiac arrest patients with suspected hyperkalemia (DKA, renal failure, calcium channel blocker overdose).
- Suspected hyperkalemia with cardiovascular toxicity (wide QRS, peaked T waves and/or sine wave or hemodynamic instability).
- Calcium channel blocker overdose with symptomatic bradycardia or hemodynamic instability.
- Respiratory depression after infusion of magnesium sulfate (decreased diaphragm neuromuscular action).

## 4.0 Contraindications

- Patients taking digitalis, as it may precipitate digitalis toxicity.

## 5.0 Precautions

- Extravasation of calcium chloride may cause tissue necrosis.
- If given too quickly, it may cause bradycardia, a burning sensation, and/or a metallic or chalky taste.
- Calcium chloride should not be administered with sodium bicarbonate simultaneously as a precipitate can form which may clog the line.

## 6.0 Route

- May be given IV/IO (preferably a large vein if administered IV to decrease irritation).

## 7.0 Dosage

**Adult**

- 1 g over 3 minutes, repeat x 1 in 10 minutes if indications still present.

**Pediatric**

- Cardiac arrest: 20 mg/kg (maximum single dose of 1 g) over 3 minutes, repeat x 1 in 10 minutes if indications still present.
- Non-arrest: 10 mg/kg (maximum single dose of 1 g) over 15 minutes, repeat x 1 in 10 minutes if indications still present.

## 8.0 Supplied

- 1000 mg in a 10 mL vial

## 9.0 May Be Given By

- ACP/CCP

## 10.0 Adverse Effects

- Decreased blood pressure
- Bradycardia
- Vomiting
- Syncope
- Arrhythmias
- Cardiac arrest

## 11.0 Special Notes

- Always flush the line between doses of calcium and bicarbonate to avoid precipitation.
- Ensure the line is patent before calcium administration as to avoid extravasation.
- Consider consulting the Atlantic Canada Poison Centre in the setting of suspected calcium channel blocker overdose.
- Calcium chloride is not the definitive treatment for hyperkalemia. Patients will require treatment with salbutamol, insulin, and possibly renal dialysis at a healthcare facility.
- Routine administration of calcium chloride for cardiac arrest is not recommended.
- Pregnancy category C [if the patient will benefit from a Category C drug, it is generally used]

## 12.0 References


- Cardiac Arrest Adult Clinical Practice Guideline
- Toxicological Emergencies Clinical Practice Guideline
- Compendium of Pharmaceuticals and Specialties (CPS)


*Electronically Signed