

Calcium Chloride

Classification

Electrolyte

Indications

- ACP: Cardiac arrest due to suspected hyperkalemia (e.g., renal failure, diabetic ketoacidosis)
- ACP: Suspected hyperkalemia with cardiovascular toxicity (e.g., wide QRS complexes, peaked T waves, or hemodynamic instability)
- ACP: Calcium channel blocker overdose with symptomatic bradycardia or hemodynamic instability

CALCIUM SHALL NOT BE ROUTINELY GIVEN IN CARDIAC ARREST IN THE ABSENCE OF EVIDENCE OF HYPERKALEMIA

Contraindications

- Hypersensitivity to calcium chloride
- Primary or secondary hypercalcemia

Adult dosages

- ACP: All indications
- 1 g IV over 3 minutes
- May repeat once in 10 minutes if indications are still present

Pediatric Considerations And Dosing

[Follow weight-based dosing](#)

- ACP: Cardiac arrest
- 20 mg/kg IV over 3 minutes. Maximum single dose 1 g
- May repeat once in 10 minutes if indications are still present
- ACP: All other causes
- 10 mg/kg IV over 15 minutes. Maximum single dose 1 g
- May repeat once in 10 minutes if indications are still present

Mechanism Of Action

Calcium is essential for a wide range of biological processes, including nerve conduction, muscle contraction, renal function, and coagulation. Administration of calcium in prehospital contexts is intended to improve myocardial contractility and ventricular automaticity.

Pharmacokinetics

Intravenous administration of calcium is completely absorbed by the body. It is rapidly incorporated into skeletal muscle and distributed evenly between intra- and extracellular fluids.

Adverse Effects

Tissue irritation is the most common side effect of calcium administration. Hypotension, cardiac arrhythmias, and

cardiac arrest may occur if calcium is given too quickly. Calcium chloride may precipitate or worsen acidosis, cor pulmonale, or renal and respiratory diseases.

Warning And Precautions

Do not administer calcium IM or SC. Extravasation of calcium can cause tissue necrosis.

Drug Interactions

Flush IV lines well prior to or following sodium bicarbonate administration to avoid development of calcium carbonate precipitate.

Patients taking digoxin and receiving calcium are at elevated risk for the development of arrhythmias.

