



## EMS System for Metropolitan Oklahoma City and Tulsa 2023 Medical Control Board Treatment Protocols



Approved 9/14/22, Effective 1/16/23, replaces all prior versions

### 16G – CALCIUM CHLORIDE

#### PARAMEDIC

**Class:** Electrolyte

**Actions/Pharmacodynamics:** Calcium causes a significant increase in myocardial contractility and in ventricular automaticity. It is used as an antidote for some electrolyte imbalances (eg. stabilizing cardiac rhythm in the setting of hyperkalemia) and to minimize the side effects from calcium channel blocker overdose. The actions of calcium chloride are similar to those of calcium gluconate but, since it ionizes more readily, it is more potent than calcium gluconate.

**Indications:** Specific Causes of Cardiac Arrest (Hyperkalemia) (4I)  
Poisonings - General Management (Calcium Channel Blocker Overdose) (8A)  
Dialysis-Related Issues (Hyperkalemia) (9E)  
Crush Injury Syndrome (Hyperkalemia Prophylaxis) (10K)

**Contraindications:** Calcium chloride is contraindicated in ventricular fibrillation unless known hyperkalemia, in known hypercalcemia, and in suspected digitalis toxicity. It should be used with caution in patients taking digoxin as it may precipitate toxicity. Safe use in pregnancy and in children has not been established, though in indicated conditions, benefits outweigh risks.

**Pharmacokinetics:** Onset nearly immediate when given IVP/IOP. The peak effect time frame and duration of effect is not well established.

**Side Effects:** Paresthesias (tingling), syncope, sensations of heat waves (peripheral vasodilation), pain and burning at IV site, skin necrosis and sloughing (with extravasation), hypotension, bradycardia, cardiac dysrhythmias, cardiac arrest.

**Dosage:** **Specific Causes of Cardiac Arrest (Hyperkalemia) - Adult & Pediatric (4I)**  
**Poisonings - General Management (Calcium Channel Blocker Overdose) - Adult & Pediatric (8A)**  
**Dialysis-Related Issues (Hyperkalemia) - Adult & Pediatric (9E)**  
**Crush Injury Syndrome (Hyperkalemia Prophylaxis) - Adult & Pediatric (10K)**  
10 mg/kg (10% solution) IVP/IOP, maximum dose of 1 gram

**How Supplied:** 1 gram in a 10 mL prefilled syringe (100 mg/mL)  
(Always check concentration and dose per container at time of patient medication administration)

**Special Comments:** Calcium chloride will interact with sodium bicarbonate and form a precipitate. Do not give both medications via the same vascular access line unless giving a copious flush of NS - approximately 50+ mL - between medications. In general, use an 18-20 gauge angiocatheter in a proximal IV site or use an IO line and test line patency before administration. In non-cardiac arrest or non-impending cardiac arrest settings, administer at 0.5 -1.0 mL per minute to reduce chances of venous irritation and extravasation.