

Calcium Chloride MIN-I-JET

Calcium chloride, Injection, solution 10% w/v 1g/10mL

Presentation

Calcium Chloride Injection is a sterile aqueous solution of calcium chloride 10% w/v (6.8 mmol of calcium in 10 mL) and also contains calcium hydroxide and hydrochloric acid.

Uses

Actions

Calcium is essential for the functional integrity of the nervous and muscular systems. It is necessary for normal cardiac function. It is also one of the factors involved in the mechanism of blood coagulation, in the storage and release of neurotransmitters and hormones and in the absorption of vitamin B₁₂.

Calcium ions increase the force of myocardial contraction and may increase or decrease peripheral vascular resistance. With a normal heart, the positive inotropic and vasoconstricting effects combine to increase systemic arterial pressure.

Following intravenous administration, serum calcium levels rise almost immediately and return to previous levels in 30 minutes to 2 hours. Calcium enters the extracellular fluid and is then rapidly incorporated into skeletal tissue. Of the total serum calcium concentration, 50% is in the ionic form, 5% is complexed by phosphates, nitrates and other ions and 45% is bound to plasma proteins. Calcium crosses the placenta and is excreted in breast milk.

Calcium is excreted mainly in the faeces. Most of the calcium filtered by the renal glomeruli is reabsorbed; urinary excretion depends on serum calcium ion concentration.

Indications

For the immediate treatment of hypocalcaemic tetany. Other therapy such as parathyroid hormone and/or vitamin D may be indicated depending on the aetiology of the tetany. Oral calcium should be substituted as soon as possible.

Calcium salts may be used as adjunctive therapy in severe hyperkalaemia or as an aid in the treatment of depression due to overdosage of magnesium sulphate (calcium is the antagonist of magnesium toxicity).

Calcium chloride is occasionally used as an inotrope in cardiac resuscitation.

Dosage and Administration

In hypocalcaemic disorders:

Adults

500 mg to 1 g (5-10 mL) at intervals of 1-3 days, depending on the patient's response and serum calcium levels. Repeated injections may be required.

Children

0.2 mL/kg body weight. Maximum 1-10 mL per day.

In severe hyperkalaemia: adjust dosage by constant monitoring of ECG changes during administration.

In magnesium poisoning:

Adults

500 mg (5 mL) administered promptly. Observe the patient for signs of recovery before further doses are given.

Contraindications

Calcium should not be administered to patients with hypercalcaemia, hypercalciuria or severe renal disease. In cardiac resuscitation, the use of calcium is contraindicated in the presence of ventricular fibrillation.

Unless the indications are clearly defined, a digitalised patient should not receive an intravenous injection of a calcium compound as the inotropic and toxic effects of cardiac glycosides and calcium salts are synergistic.

Calcium chloride should not be administered by the intramuscular or subcutaneous routes as it may cause necrosis and sloughing.

Calcium chloride injections should never be given to infants orally because of severe irritation to the gastrointestinal tract.

Injections to infants should not be given through the scalp veins.

Warnings and Precautions

A moderate fall in blood pressure due to vasodilation may occur.

Since calcium chloride is an acidifying salt, its use is undesirable in the treatment of hypocalcaemia associated with renal insufficiency. It should be used with caution in cor pulmonale, respiratory acidosis and respiratory failure.

Calcium Chloride Injection should be given by slow intravenous injection only so that by the time it reaches the heart it is dilute. It is particularly important to prevent a high concentration of calcium from reaching the heart muscle because of the danger of syncope. Care should be taken not to infiltrate the perivascular tissue due to the possible of necrosis. Solutions should be warmed to body temperature and injected slowly through a small needle into a large vein to minimise venous irritation and to avoid undesirable reactions. Direct injection into the heart tissue should be avoided.

The calcium chloride is in a single use MIN-I-JET prefilled syringe. Once the unit is assembled and used, any remaining portion of the solution must be discarded with the entire unit.

Use in pregnancy

Safe use in pregnancy has not been established. Calcium crosses the placenta. The benefits of using the product should be weighed against possible risks to the foetus.

Use in lactation

Calcium is excreted in breast milk but there are no data on the effects on the infant.

Interactions with other drugs

Calcium salts should not be mixed with carbonates, phosphates, sulphates, tartrates or tetracycline antibiotics in parenteral mixtures.

Administration of calcium salts may reduce the response of calcium channel blocking drugs.

Adverse Effects

Venous irritation may occur after the intravenous injection of calcium salts. Rapid intravenous injection may cause the patient to complain of tingling sensations, a calcium or chalky taste, a sense of oppression or hot flushes.

Peripheral vasodilatation may occur as well as a local burning sensation and a moderate fall in blood pressure, bradycardia, cardiac arrhythmias, syncope and cardiac arrest.

Overdosage

Overdosage with calcium chloride can cause anorexia, nausea, vomiting, constipation, abdominal pain, muscle weakness, mental disturbances, polydipsia, polyuria, bone pain, nephrocalcinosis, renal calculi and, in severe cases, cardiac arrhythmias, coma and cardiac arrest.

Treatment is usually not necessary in asymptomatic patients with mild hypercalcaemia; ceasing administration of calcium is usually enough, providing the patient has adequate renal function.

When serum concentrations of calcium are above 12 mg per 100 mL, immediate measures may be required, such as hydration with intravenous sodium chloride 0.9% and the use of loop diuretics, chelating agents, calcitonin and corticosteroids. Serum calcium concentration should be determined at frequent intervals and therapy adjusted accordingly.

Pharmaceutical Presentation

Store below 25°C.

Medicine Classification

General Sales Medicine.

Package Quantities

Calcium Chloride Injection is available as a single use prefilled MIN-I-JET syringe containing 1 g of calcium chloride in 10 mL of solution (100 mg/mL) (6.8 mmol of calcium per 10mL).

Further Information

Nil

Names and Addresses

Manufactured by:

Celltech Manufacturing Services Limited

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