


CALCIUM GLUCONATE 10%

Indication	<ul style="list-style-type: none"> • Treatment of hypocalcaemia¹ • Cardiac arrhythmia when hypocalcaemia or hyperkalaemia present¹ • Prevention of hypocalcaemia in exchange transfusions¹ 		
INTRAVENOUS	Presentation	<ul style="list-style-type: none"> • Ampoule 2.2 mmol/10 mL (0.22 mmol/mL) 	
	Dosage	<ul style="list-style-type: none"> • IV injection <ul style="list-style-type: none"> ○ 0.11 mmol/kg (0.5 mL/kg)² • IV infusion <ul style="list-style-type: none"> ○ 0.44–1.76 mmol/kg/day (2–8 mL/kg/day)³ • Exchange transfusion <ul style="list-style-type: none"> ○ 0.22 mmol (1 mL) after each 100 mL of blood exchanged³ (NOT based on weight) 	
	Preparation	<ul style="list-style-type: none"> • IV injection <ul style="list-style-type: none"> ○ Draw up prescribed dose and add equal volume of compatible fluid ○ <i>Concentration now equal to 0.11 mmol/mL</i> ○ Can be given undiluted in an emergency • IV infusion <ul style="list-style-type: none"> ○ Add prescribed dose to 24-hour compatible maintenance fluid • Example preparation <ul style="list-style-type: none"> ○ Make up to total of 100 mL with compatible maintenance fluid (in a burette) ○ Calculate infusion rate/hour to deliver daily dose over 24 hours 	
	Administration	<ul style="list-style-type: none"> • Draw up the prescribed dose • IV injection over 5 minutes <ul style="list-style-type: none"> ○ ONLY under direct medical or NNP supervision ○ NOT via UAC 	
	Administration	<ul style="list-style-type: none"> • IV infusion via compatible maintenance fluid 	
Special considerations	<ul style="list-style-type: none"> • 0.22 mmol/mL is equivalent to 95.3 mg/mL of calcium gluconate and 8.9 mg/mL of elemental calcium³ • Large vein or CVL preferred³ (risk of sloughing and tissue necrosis with extravasation³) <ul style="list-style-type: none"> ○ If PVL used, ensure patency prior to administration • Rapid administration of bolus dose may cause vasodilation, hypotension, bradycardia, arrhythmias and cardiac arrest⁴ • UAC route (infusion only): discuss with neonatologist/paediatrician prior to use 		
Monitoring	<ul style="list-style-type: none"> • ECG during infusion administration <ul style="list-style-type: none"> ○ Temporarily cease infusion if bradycardia occurs³ • Monitor serum ionised calcium levels 12–24 hourly and adjust treatment accordingly • Correct hypomagnesaemia if present³ • Extravasation 		
Compatibility	<ul style="list-style-type: none"> • Fluids⁴ <ul style="list-style-type: none"> ○ 5% glucose, 5% glucose in 0.9% sodium chloride, 0.9% sodium chloride • Y-site⁴ <ul style="list-style-type: none"> ○ Cisatracurium, fentanyl, filgrastim², heparin sodium, midazolam, piperacillin-tazobactam (EDTA-free), potassium chloride 		

Incompatibility	<ul style="list-style-type: none"> • Known^{1,4,5} <ul style="list-style-type: none"> ○ Do not add to PN solution or administer via PN line as precipitates with phosphate² ○ Amphotericin B, cefalothin, ceftriaxone, clindamycin, diazoxide, dobutamine, flucloxacillin (floxacillin), hydrocortisone, indomethacin, phenytoin, sodium bicarbonate, sulfamethoxazole-trimethoprim (co-trimoxazole) ○ Do not mix with any medicine that contains phosphates, carbonates or sulfates^{1,5} • Suspected/variable^{4,5} <ul style="list-style-type: none"> ○ Amiodarone, ampicillin, dexamethasone, fluconazole, meropenem, pantoprazole • WARNING CEFTRIAZONE^{1,4} <ul style="list-style-type: none"> ○ Do not administer concurrently or within 48 hours of ceftriaxone as fatal reactions have occurred (refer to side effects) ○ Using a separate line for administration of ceftriaxone and calcium-containing solutions does not protect against potential adverse effects
Interactions	<ul style="list-style-type: none"> • Nil significant
Stability	<ul style="list-style-type: none"> • Ampoule^{1,4} <ul style="list-style-type: none"> ○ Store below 30 °C. Do not refrigerate ○ Discard after opening ○ Solution may precipitate at low temperatures; inspect before use, discard if discoloured, turbid, cloudy or contains particles • Infusion solution <ul style="list-style-type: none"> ○ Complete (change or discard) within 24 hours^{1,4}
Side effects	<ul style="list-style-type: none"> • Rapid IV injection may cause vasodilation, decreased blood pressure, bradycardia, cardiac arrhythmia and arrest¹⁻³ • Fatal reactions with calcium-ceftriaxone precipitates in lung and kidneys in term and preterm neonates described³
Actions	<ul style="list-style-type: none"> • Activator in many enzymatic reactions and essential for nerve impulses, contraction of cardiac, smooth and skeletal muscles, renal function, respiration and blood coagulation • Regulatory role for neurotransmitters and hormones, in the uptake and binding of amino acids, in cyanocobalamin (vitamin B12) absorption and in gastrin secretion¹
Abbreviations	CVL: central venous line, ECG: electrocardiograph; IV: intravenous; NNP: neonatal nurse practitioner, PN: parenteral nutrition UAC: umbilical arterial catheter; UVC: umbilical venous catheter;
Keywords	calcium gluconate injection 10%, ca, calcium, calcium gluconate, hypocalcaemia, hyperkalaemia, exchange transfusion

The Queensland Clinical Guideline *Neonatal Medicines* is integral to and should be read in conjunction with this monograph. Refer to the disclaimer. Destroy all printed copies of this monograph after use.

References

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Document history

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