South Australian Neonatal Medication Guidelines

calcium gluconate

1gram/10mL (0.22mmol/mL) injection elemental calcium

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Endorsed by: South Australian Maternal & Neonatal Clinical Network
Contact: South Australian Neonatal Medication Guidelines Workgroup at:
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Government of South Australia
SA Health

This is a High Risk Medication 

Rapidly fatal in overdose

For information on oral calcium, see calcium carbonate

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Dose and Indications

Doses should be expressed in millimole (mmol) of ELEMENTAL calcium. Each ampoule contains 0.22mmol/mL of elemental calcium equiv. to 100mg/mL of calcium GLUCONATE.

Correcting Acute Symptomatic Hypocalcaemia

Intravenous

0.22mmol/kg to 0.44mmol/kg elemental calcium as a single dose

Maintenance Treatment for Hypocalcaemia

Use oral treatment with calcium carbonate where possible as it is cheaper and more convenient

Intravenous

0.11 mmol/kg/dose 4 times a day

Exchange Transfusion

Intravenous

0.11 to 0.22mmol/kg elemental calcium may be used if hypocalcaemia is documented

Severe Hyperkalaemia with electrocardiogram (ECG) changes

Intravenous

0.11mmol/kg of calcium gluconate 10% per dose

These are initial doses only and should be adjusted according to calcium and phosphate levels.

Preparation and Administration

Intravenous

The intravenous preparation is formulated as calcium gluconate (equivalent to 0.22mmol elemental calcium in 1mL).

Dilute 5mL of the 0.22mmol/mL elemental calcium solution with 5mL of compatible fluid (to a

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total of 10mL).The resulting solution contains 0.11mmol/mL.

Dose	0.11mmol	0.22mmol	0.33mmol	0.44mmol	0.55mmol	0.66mmol
Volume	1mL	2mL	3mL	4mL	5mL	6mL

Where possible infuse via a central line over an hour if circumstances allow.

For rapid administration, push dose at a rate of 0.23mmol/minute to reduce the risk of phlebitis/extravasation.

Avoid intra-arterial administration.

Compatible Fluids

Glucose 5%, glucose 10%, sodium chloride 0.9%

Adverse Effects

Infrequent

Hypercalcaemia, alkalosis, hypophosphataemia

Rare

Renal calculi

Side effects specifically associated with intravenous administration include calcium deposition (extravasation), skin necrosis (extravasation), and irritation.

Vasodilation, bradycardia, hypotension and arrhythmias are related to rapid intravenous administration.

Monitoring

- Cardiac monitoring during administration. The electrocardiogram (ECG)should be monitored for evidence of hypercalcaemia, bradycardia and other arrhythmias (stop infusion if heart rate is less than 100 beats per minute).

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Practice Points

- Intramuscular magnesium sulphate may be preferable for the treatment of transient late neonatal hypocalcaemia
- Calcium gluconate should not be added to Parenteral Nutrition Solution as it may cause precipitation of calcium phosphate, which may not be visible (refer to your pharmacy department for more information)
- Do not mix with any other drugs. It will precipitate out of solution when mixed with many different medications
- Improves ECG manifestations of hyperkalaemia without changing plasma potassium level.
- Rapid intravenous injection may cause sinus bradycardia
- Use with CAUTION in patients with renal or cardiac impairment
- Not recommended to be given by intramuscular or subcutaneous routes as tissue necrosis may occur
- Avoid extravasation by administering slowly into a central vein
- Calcium gluconate interacts with a range of medications; please check with your local pharmacy department for specific advice

Version control and change history

PDS reference: OCE use only

Version	Date from	Date to	Amendment
1.0	November 2012	current	Original version

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