

MANAGEMENT OF HYPOCALCAEMIA IN HOSPITAL USM

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CALCIUM PREPARATIONS	STRENGTH ⁽¹⁾	ELEMENTAL CALCIUM ⁽²⁻⁴⁾
Tablet Calcium Carbonate	500mg/ tab	40%, 200mg, 5mmol
Tablet Calcium Lactate	300mg/ tab	13%, 39mg, 1mmol
Injection Calcium Chloride 10%	1g/ 10ml	27mg/ml, 0.68mmol/l
Injection Calcium Gluconate 10%	1g/ 10ml	9mg/ml, 0.22mmol/ml

***Calcium gluconate** is preferred to calcium chloride because it is less likely to cause tissue necrosis if extravasated ⁽⁴⁾.

Calcium Correction Formula for Hypoalbuminemia in Adults ⁽³⁾

Corrected Serum Ca (mmol/L) = Current Serum Ca (mmol/L) + 0.02 x [Normal Albumin – Current Serum Albumin (g/L)]

Where Normal Albumin = 40 g/L ;

Normal Serum Calcium = 2.1-2.65mmol/L

Mildly Symptomatic or Chronic Hypocalcemia [serum corrected calcium:> 1.9 to 2.0 mmol/L] ⁽⁴⁾

- Treated initially with 1-2g/day of elemental calcium as oral preparation, given in divided doses
- Eg: Tab Calcium Carbonate 1.5g TDS (4.5g of Calcium Carbonate = 1.8g of elemental calcium)
- Daily maintenance dose of elemental calcium is 1-4g orally

Severe Symptomatic and/or Acute Hypocalcemia or if Corrected Calcium \leq 1.9mmol/L ⁽⁴⁾

- IV Calcium Gluconate 10% 10-20 ml (1-2 gm) STAT
(diluted in 50 ml of D5% or NS, given over 10-20 mins) ⁴
- Then followed by IVI Calcium Gluconate 10% 1-2 mg/kg/h x 6-12h i.e 30 ml 10% Ca gluconate diluted to 100 ml N/S run at 25-40ml/h x 6-12h)

Additional Information ⁽⁴⁾

1. Treat hypomagnesemia if present.
2. The bolus/ STAT dose of calcium gluconate may be repeated after 10 to 60 minutes, if needed to resolve symptoms.
3. The bolus/ STAT dose of calcium gluconate will raise the serum calcium concentration for only two or three hours; as a result, it should be followed by a slow infusion of calcium in patients with persistent hypocalcemia.

References:

1. Hospital USM Formulary
2. Sarawak Handbook of Medical Emergencies 3rd Edition
3. Critical Care Pharmacy Handbook 2nd Edition
4. Gildzman, D.(2023). Treatment of hypocalcemia. *UpToDate*. Retrieved December 6th, 2023, from: <https://www.uptodate.com/contents/treatment-of-hypocalcemia>
5. Calcium Gluconate: Drug Information. *UpToDate*. Retrieved on December 7th, 2023 from: <https://www.uptodate.com/contents/calcium-gluconate-drug-information>

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