Hypocalcaemia

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More common causes

- Hypoparathyroidism, usually post parathyroidectomy
- Hypomagnesaemia
- Hyperphosphataemia usually with chronic renal failure
- Tumour lysis syndrome (high phosphate)
- Pancreatitis
- Vit D deficiency
- Drugs – Bisphosphonate / Cinacalcet

Approach

- Always correct total calcium for hypoalbuminaemia
  (Add 0.02 mmol/L for each gram albumin below 40g/L)
- If possible, measure ionised calcium – better than measuring total Ca2+
- Measure PTH; 1,25 Vit D; 25OH Vit D if diagnosis not already known

Check for

- ECG - prolonged Q-T interval
- Chvostek's and Trousseau's signs (reflect reduced ionised calcium) – rarely present

Treatment

1. If total (corrected) Ca2+ < 1.90 mmol/L or ionised calcium < 1.0 mmol/L (normal is 1-1.3mmo/L): treat intravenously.
   - 1g (10 mls) of 10% calcium gluconate slowly over 10 mins.

2. Reassess plasma calcium and albumin, or ionised calcium, in 4 hours.

3. If persistent hypocalcaemia repeat 1g bolus as above and commence intravenous infusion:
   - 1.5mg/kg/hr calcium gluconate in 500mls Saline over 12 hrs.
   - Remeasure calcium each 4 hours during infusion.
     Eg: A 70kg man with repeat total calcium of 1.70mmol/L needs 1.5mg x 70 /hr. = approx. 100mg/hr = 1200mg (1.2g) / 12 hrs
   - This is a guide only so remeasure calcium each 4 hours during infusion and give bolus 1g over 10-20 minutes if total calcium remains <1.90mmol/L or ionised calcium <1.0mmol/L.

4. Treat associated significant hypomagnesaemia (≤ 0.70mmol/L) with IVI Mg Sulphate 2g in 50-100 ml. Normal Saline over 20 mins. If still low after 4 hours repeat bolus 2g as above then intravenous infusion of 1g in 100ml Normal Saline per hr.
   - Commence Mg Aspartate 500mg bd.

5. Treat hyperphosphataemia with oral Calcium Carbonate beginning 600mg with each meal.

6. If Vit D deficient – Calcitriol 0.25µg daily.

For patients having parathyroidectomy for secondary hyperparathyroidism see protocol

- ‘Management of patients undergoing parathyroidectomy’