

Clinical Pearls: A case study in Hypoparathyroidism

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16th June 2005



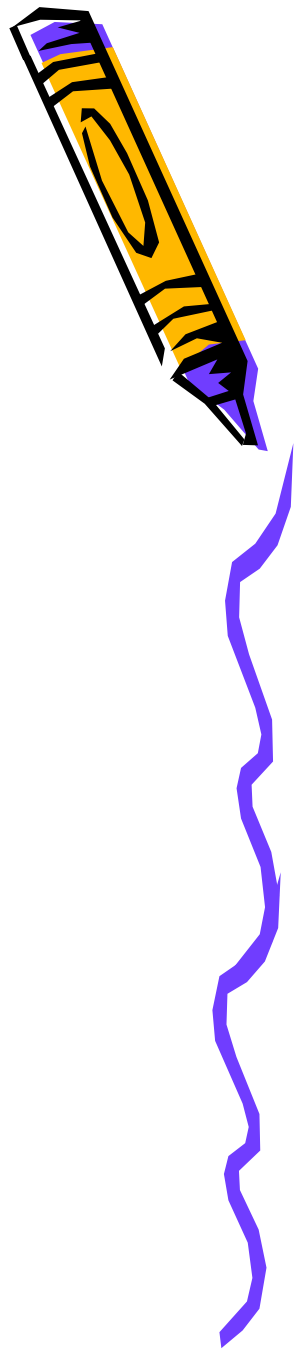
Do you know...

- Should Calcium and Magnesium supplements be taken before or after meals? Why?
- How much fluid is there in a Rocaltrol capsule?
- What is the use of hydrochlorothiazide apart from as a diuretic?



Case Study

- WF - Female
- Gestation: 38 week (full-term)
- BW: 2.92kg
- APGAR Score – 10
- Chief Complaint:
 - Intermittent cyanosis on Day 6



Case Study

- Lab Results (Day 6):
 - PTH <0.7 (1.6 – 6.9)
 - Magnesium 0.53mmol/L (0.70 – 0.99)
 - Ionized Calcium 0.94mmol/L (1.05 – 1.30)
 - Phosphate 3.06mmol/L (0.97 – 2.58)
 - pH 7.21 (7.35 – 7.45)



Case Study

- Diagnosis:
 - Congenital Hypoparathyroidism
 - Hypomagnesemia
 - Hypocalcaemia
 - Renal Tubular Acidosis



Progression of WF

- Day 20 – 46, fluctuation in Mg & Ca level
 - Increase doses of supplement
 - Changes:
 - Vit D₂, Calcitriol, Alfacalcidol
 - Calcium gluconate, Calcium Sandoz
 - Mg level (0.76) normalized on Day 36
 - Ca level still below ref range



Progression of WF

- Day 52, twitching motion observed
 - Repeated 4 limbs twitching with desaturation
 - Stary eyes
 - Muscle rigidity (UL+LL)
 - Given: IV phenytoin 65mg stat
 - No fits/twitching after drug given
 - Suspected: Hypocalcaemia-induced



Progression of WF

- Current medications:
 - MgSO_4 (49.3mg/ml) 131.5mg/kg/day
 - Calcium Sandoz (500mg in 50ml water) 200mg/kg/day
 - Rocaltrol 277.8ng/kg/day
 - NaHCO_3 8.4% 2mEq/kg/day
 - Hydrochlorothiazide 1.33mg/kg/day



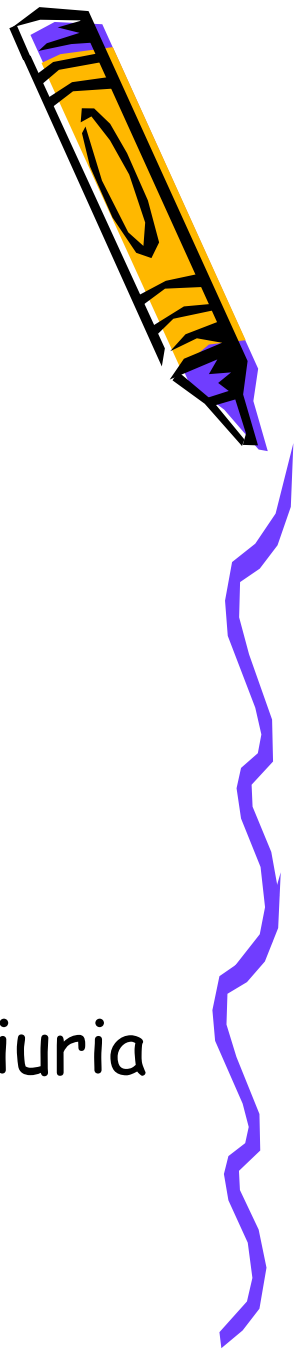
Reference Range

- Elemental Calcium 50 – 150mg/kg/day
- Magnesium Sulphate 40 – 80mg/kg/day
- Sodium Bicarbonate 2 – 3mEq/kg/day
- Calcitriol 40 – 80ng/kg/day
- Alfacalcidol 50 – 100ng/kg/day
- Hydrochlorothiazide 1 – 2mg/kg/day



Roles of Pharmacist

- Dosage checking
- Patient Counseling
 - Uses of medications
 - Ca, Mg, Vit D: as supplements
 - NaHCO_3 : for renal tubular acidosis
 - Hydrochlorothiazide: for hypercalciuria
 - Drug administration



Patient Counseling

- Dosage
 - Accuracy of dosage (for Rocaltrol)
 - Rocaltrol capsule 0.17ml/0.5mcg capsule
- Side effects of medications
- When to seek medical advice
 - E.g. muscle weakness, ↓ RR, anorexia, severe diarrhea, bloody stool



Patient Counseling

- Drug administration
 - In relation to meal times (affect absorption)
 - Calcium: take with meals (\uparrow absorption in low pH)
 - Magnesium: take 1 hours before meals (\uparrow absorption in high pH)
 - Compatibility with milk or other medications





Q & A

