44 yo man with hypercalcemia

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HPI

- 44 yo M with DM1 and ESRD
- DM1 since age 5
  - Poorly controlled (A1c 9.1), multiple complications, hypoglycemia unawareness
- ESRD on HD since 2007
- Simultaneous kidney-pancreas transplant 7/19/12
- Complicated by intraop SMV thrombosis > transplant pancreatectomy
HPI

- Consult for DM Management
- Transitioned from insulin gtt to SQ on POD #2
- Plan to transition back to insulin pump when mental status more stable
- Transferred back to ICU POD#4 due to HTN, abdominal pain, N/V
- Noted to have Ca 12.3
PMH

- DM1
- Bilateral retinopathy
- ESRD on HD since 2007 now s/p renal txp
- HTN on 5 BP meds at home
- CAD s/p RCA stent 2009
- Diastolic dysfunction
- PVD s/p LLE stent
- Elevated transaminases due to secondary hemosiderosis
- Benign lung nodule
Medications

- **Home**
  - Amlopidine 10 mg daily
  - Coreg CR 80 mg daily
  - Hydralazine 50 mg TID
  - Minoxidil 5 mg am, 2.5 mg pm
  - Furosemide 20 mg daily
  - Fosrenol 1 tab TID
  - Lipitor 20 mg qhs
  - ASA 81 mg daily
  - Plavix 75 mg daily
  - Dialyvite daily
  - Asmanex prn

- **Current**
  - Acyclovir 400 mg BID
  - Duonebs q6h
  - Coreg 37.5 mg BID
  - Amlodipine 10 mg daily
  - Ciprofloxacin 400 mg BID
  - Flagyl 500 mg q8h
  - Vancomycin 1 g q12h
  - Bactrim SS 1 tab daily
  - Colace 100 mg BID
  - Pepcid 20 mg daily
  - Cellcept 1000 mg BID
  - Prednisone 40 mg daily (taper)
  - Prograf 2 mg BID
  - Lantus 25 units qam
  - Novolog 5 units qac
  - Novolog 1:30>150
  - Hydralazine 5-10 mg q1-2h prn
  - Dilaudid prn
Family and Social History

- **Family History**
  - 15 yo daughter recently dxed with DM1
  - No CKD
  - No known calcium disorders

- **Social History**
  - 10 pack year smoker, quit 2005
  - Rare alcohol, no illicits
  - Divorced, 4 children
  - Former automotive worker
Physical Exam

- Wt 73.1 kg, Ht 175.3 cm
- T 35.7, HR 67-87, BP 165-229/68-105, RR 14-21, SaO2 88-100%
- Constitutional: Lethargic, uncomfortable
- Head: Normocephalic and atraumatic.
- Eyes: Conjunctivae and EOM are normal.
- Neck: Neck supple. No thyromegaly present.
- Cardiovascular: Normal rate and regular rhythm. No murmurs. Mild edema.
- Pulmonary/Chest: Clear to auscultation bilaterally
- Neurological: Somewhat confused, not answering questions appropriately.
- Skin: No rashes.
Differential Diagnosis

- Hyperparathyroidism
- Vitamin D excess
  - Increased calcitriol production
- Resorption of soft tissue calcifications
- Normalization of phosphate
- Resolution of uremia
  - Decreased PTH resistance
- Immobilization
- Malignancy
## Labs

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- 7/23/12 PTH 373
- 25OHD 24
- 1,25OHD 13
Course

- 0.9NS increased from 83 ml/hr to 200 ml/hr
- Lasix 40 mg IV per nephrology
- Discussed cinacalcet, bisphosphonate
  - Nephrology hesitant to use either initially
- Ultimately started on cinacalcet after unable to wean off IVF
Is furosemide first line for hypercalcemia?

- Furosemide still often recommended but evidence is questionable
- Normalization in 14/39 episodes, 2 quickly
- 40-60 mg/d did not normalize in 12 d
- Monitoring intense
- Electrolyte abnormalities
- IVF + bisphosphonate +/- calcitonin
Post renal transplant hypercalcemia

- Course of post-transplant course predicted by pre-transplant calcium
- Pre-txp PTH 399 in hypercalcemic at 12 mos vs. 204 in normocalcemic
Treatment of post renal transplant hypercalcemia: Cinacalcet

- Journal of Nephrology 2011
  - 17 renal txp pts with hyperCa 2/2 to persistent hyperpara 58 +/- 35 mos posttxp, serum Ca>10.2, PTH>150, CrCl>40
  - Cinacalcet 30 mg qd, increased to 60 mg in 2 pts
  - Ca 10.5->9.7 1 month->9.4 1 yr
  - PTH 204.79->173.6->148.55
  - PO4 2.9->3.4->3.1
  - Cr 1.7->1.8->1.5

- Hypophosphatemia?
  - Dialysis patients vs. post-txp patients
Treatment of post renal transplant hypercalcemia-parathyroidectomy

- Long lifespan of parathyroid cells->slow involution
- Interstitial microcalcifications, hypophosphatemia, bone loss
- Lack of proven effect of cinacalcet on bone, expense
- Proposed indications
- Negative effect on renal function?
References