Hypercalcemia

UpToDate v11.2

Key Points:
- Use a step-wise approach to diagnosing hypercalcemia, including physical exam
- Fluids, fluids, fluids

Causes
- Primary hyperparathyroidism (main outpatient cause)
- Malignancy: PTHrP, osteolytic, calcitriol (main inpatient cause)
- Granulomatous diseases
- Drugs: milk-alkali, vitamin D, thiazides, lithium
- Endocrine: hyperthyroidism, adrenal insufficiency
- Paget’s
- Immobilization
- Familial hypocalciuric hypercalcemia
- ESRD and tertiary hyperparathyroidism

Mechanisms
- GI absorption
- Bony resorption
- Renal excretion

Manifestations:
- GI: constipation, PUD, pancreatitis
- Renal: stones, DI, RTA (type I), tubular toxicity (nephrocalcinosis)
- Cardiovascular: QT short, HTN
- Myalgias, weakness
- Neuro: confusion, coma

Helpful findings:
- Level: higher with malignancy, rarely >11 or 12 with primary hyperparathyroidism
- Serum PO4: low with humeral hypercalcemia of malignancy (PTHrP) or hyperparathyroidism
- Urine calcium: high or high normal with hyperparathyroidism and malignancy, low with milk alkali (due to metabolic alkalosis), thiazides, and FHH
- Serum Cl: high in hyperparathyroidism

Workup: (see algorithm)

Rx:
- Fluids, fluids, fluids!
- Decrease GI absorption: stop supplements
- Decrease bony resorption:
  - Calcitonin (quick but not always successful and tachyphylaxis)
  - Bisphosphonates (caution with renal failure): Zometa for malignancy related hypercalcemia
- Increase renal excretion: no lasix in volume depletion
- Multifactorial: glucocorticoids for granulomatous diseases