7/8/22 Morning Report with @CPSolvers

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CC: Hypercalcemia
HPI:
68yM w/ recent dx of MM, p/w hypercalcemia.

-2 months ago: Hospitalized for MM study, evidenced hypercalcemia, and received Zoledronic Acid + Cancer treatment.

- 1 month ago: Ambulatory hypercalcemia. Hospitalized and received fluids, steroids, and diuretics.

PMH:
MM,
HTN
Gout
Lumbar stenosis

Meds:
Zoledronic acid
Bortezomib
Nifedipine
Irbesartan
Allopurinol

Fam Hx:

Soc Hx:

Health-Related Behaviors:

Allergies:

Vitals: **T**: **HR**: **BP**: **RR**: **SpO_2**: Normal
Extremities/Skin: decreased motor strength

Notable Labs & Imaging:
Hematology:
WBC:11 (8.5 Neutrophils) Hgb: 9.9 Plt: 270

Chemistry:
Na: 138 K: 5.3 Cl: CO2: BUN: 96 Cr: 1.27 glucose: Cai: 2.05 ionized Phos: 2.3 Mag: 2.60
AST: ALT: Alk-P: T. Bili: Albumin:

1rst hosp: high PTH (almost 404), 25-Vit D 17 (Nl >30), Urinary Ca 320 (Nl < 300)

Serum lambda chains high, kappa light chains normal
SPEP: normal albumin, no monoclonal spike

CT contrast neck: lobular density in parathyroid gland
Focal nodular parathyroid adenoma.

Imaging:
EKG:
CXR:

Dx: Primary Hyperparathyroidism

Problem Representation: 68yoM with a PMH of MM p/w hypercalcemia refractory to bisphosphonate therapy. Found to have elevated PTH and SPEP with no monoclonal spike.

Teaching Points (Debora+Seyma <3):
- **Hypercalcemia:** before the labs come back? Constipation, mental disturbances, abdominal pain, stones, bones, Short QT in EKG. **Polyuria + constipation** (strong clue! Unique combination)
Causes: common causes can complicate, e.g. elevated PTH w/ MM. Check Vit D as a crucial factor.
Management: Acute Fluid. Severe: Calcitonin.
- **Calcium + phosphate** → bone imbalance osteoblast (incorporates Calcium; "build the bone") and osteoclast (lysis of the bone).
→ Key question: PTH vs non-PTH mediated (Cl/P-Ratio >33 suggests PTH-mediated)
- Hospitalized patients who are immobile consider hypercalcemia of immobility. With severe Vitamin D deficiency could see mild PTH elevation.

Multiple Myeloma: Age related condition. More than 10% abnormal plasma cells in bone marrow, 98% paraprotein 2 % doesn't secret paraproteins. Think of paraneoplastic effects: CRAB (but usually starts w/ BARC)
- Anemia: plasma cells secrete substances that inhibit erythropoiesis!
Bone lesions: Secretion of RANK-L leads to lytic bone lesions through stimulation of osteoclasts.
MM monitoring → disconnect the MM and hypercalcemia. Positive paraprotein

Medications:
Bortezomib: proteasome inhibitor inhibiting proteolysis
Zoledronic acid: bisphosphonate; think of upright position (causes mucositis). Increase osteoblast activity. Can cause severe hypocalcemia
Denusomab: RANK-L inhibitor
Hypercalcemia despite Bisphosphonate therapy: med not working?, MM progressing?, another cause?

CKD: high PTH due to 2nd Hyperpara → Expect HypOcalcemia due to impaired 1-alpha-hydroxylation!

High PTH: Adenoma, Hyperplasia, FHH.