10/31/22 Morning Report with @CPSolvers: HBD Jack

Case Presenter: *Rabih Geha (@rabihmgeha)* ***Case Discussants***: *Jack Penner (@jackpenner)*

CC: 42 y/o woman w/multi organ issues

HPI: Major concern: severe sinus tachycardia, hypotension
Also: high calcium, anemia, kidney injury
3 months ago: bumped into wall, pain in the site.
3 weeks prior to visit, diagnosed w/rib fracture.
In recent months: lost weight & low energy, polyuria.
Blurry vision in both eyes
Bruising & bleeding easily w/daily episodes of epistaxis.

PMH:
Rib fracture

Meds:
NSAIDs

Fam Hx:

Soc Hx:
Moved to US 5 years ago

Health-Related Behaviors:
None

Allergies:

Vitals: **T**: **HR**:140 **BP**: 110/40 **RR**: **SpO_2**:
Exam:
Gen: looks stated age, tired/fatigued
HEENT: conjunctival pallor, no LAD
CV: fast, regular, no murmurs
Pulm: clear
Abd: soft, no edema, tenderness at the site of rib fx
Extremities/Skin: reduced skin turgor, hypovolemic

Notable Labs & Imaging:
Hematology:
WBC: normal (Diff normal) Hgb: 4.5 Plt: nl
INR normal, PTT normal
Point of care hemoglobin: 5
Chemistry:
Na: 128 K: nl Cl: nl Ca:14 Cr: 1.5 (double prev)
AST, ALT, Alk-P: normal Albumin: 2.5
Total protein: 13
BNP: 1500, Troponin: nl
Serum viscosity: 4x upper limit of nl.
SPEP: IgG spike (8g/L)
Kappa/Lambda ratio >100
Imaging:
EKG: sinus tachycardia
CT PE: no PE, no pericardial effusions

Diagnosis: hyperviscosity syndrome secondary to multiple myeloma

Problem Representation: 42y/oF with multi organ issueS. Severe sinus tachycardia, hypotension, hypercalcemia, anemia and AKI. Diagnosed w/ rib fracture, evolving with los wight, low energy,polyuria, bilateral blurry vision, bruising and bleeding easily accompanied by daily episodes of epistaxis.

Teaching Points (Debora & Seyma <3):
Happy Birthday Jack!!! Halloween is Jack birthday! A holiday for him! He won a lot of candy when he was a kid. In the next year he will focus in the path not in the destination.
Multi organ issues: Disseminated infections (the most common), ingestion/exposure (medication, environment), malignancy, autoimmune disease (HLH).
Hypercalcemia: PTH-mediated (Cl/P-Ratio >33; Primary or tertiary hyperparathyroidism) or not (granulomatous disorders [sarcoid, infx, berylliosis, lymphoma), paraneoplastic (PTHrP), Multiple myeloma, Vitamin-A or D toxicity, Thiacids) → Signs: Polyuria, Polydipsia, AMS, Abdominal pain
If 2 cell lines affected (e.g conjunctival pallor: anemia, easy bruising: low platelets), think of a bone marrow issue!
→ **Bone marrow replacement** (infiltration: granuloma, leukemia; focal due to metastases of solid tumors; multiple myeloma)
→ Emergency case: APML (Can manifest w/ DIC)
Pathologic fracture: Metabolic bone dz (osteoporosis, Paget's dz, CKD), Malignancy (lytic bone lesions: multiple myeloma, metastatic dz like lymphoma), Endocrine (primary hyperparathyroidism), benign (bone cysts)
Bleeding w/o coagulation abnormalities: von Willebrand Dz, nutritional deficiencies (e.g. scurvy), vasculopathy (amyloid).
Protein gap: impact serum studies (e.g. HypoNa), is the Hb a consequence or is really 4.5.
→ **Monoclonal** (causes: MM, MGUS) or **Polyclonal** (causes: reactive process, e.g. HIV, Hep C, autoimmune: Lupus and other connective tissue dz).
Wide pulse pressure: High output HF, vessel stiffness, aortic insufficiency (from a huge stroke volume).
High BNP: atrial stress
Framework: The combination of high BNP+tachycardia+hypotension + wide pulse pressure: think of High-Output HF (HOHF)
Etiology of HOHF in the setting of underlying multiple myeloma: Anemia? , Problem in the fluid (hyperviscosity)
Multiple Myeloma: BARC (Bone lesions, Anemia, Renal, Calcium)
Hyperviscosity → leukapheresis, DO not give transfusions despite severe anemia!