Academic Half Day: Adrenal & Pituitary Disorders
1/23/20

Theory burst: 1:00-1:20
Cases 1: 1:20-2:20
Break, questions for the expert: 2:20-2:30
Cases 2 and 3 (and 4, if time): 2:30-3:25, end with questions for expert

Complete the chart prior to AHD start:

Type	Cortisol Level	Aldosterone level	Renin	ACTH	DHEA, DHEAS	Other	Morning Stim (1mcg)
Primary AI							
Central AI							

Case 1

A 65 yo man with a recent diagnosis of atrial fibrillation 2 months ago presents with 1-2 months of progressive generalized weakness and postural dizziness that are now affecting his ADL's. He has lost 10 lbs during this time. He has a history of HTN, CVA, and atrial fibrillation. He is a prior smoker. He has a family history of lung cancer. He is on Coumadin (recently started), diltiazem ER, lisinopril, and simvastatin.

PE: is significant for a BP of 84/60, irregular HR 105/min, and hyperpigmentation of gums, lips, and skin creases.

Labs: Hb 10.6, Na 133, K 5.0, INR of 7.3, and sepsis work-up is negative

1) **What general diagnoses are you considering? Why?**

2) **How do we categorize this general diagnosis?**

3) **Explain the mechanism of hyperpigmentation, hyponatremia, and hyperkalemia. The presence**

of these signs therefore suggest what diagnosis?

4) **What is the differential for the underlying cause of AI based on these categories?**

Primary AI	Central AI

5) **Describe your work-up to make the diagnosis.**

6) **Putting it all together – Discuss what the results for the below labs/tests/clinical presentations would show in Primary vs Central AI.**

Type	Cortisol Level	Aldosterone level	Renin	ACTH	DHEA, DHEAS	Other	Morning Stim (1mcg)
Primary							
Central							

Assuming the patient's adrenal glands will not recover, What's the most appropriate management at this time?

1) **What's the most appropriate management at this time**?

2) **What medications would you consider?**

3) **What is your advice regarding his medications now? What about if he were septic?**

BREAK!

Case 2

A 60-year-old man is evaluated for an eight week history of progressive muscle weakness. The patient has gained at least 40lbs and has developed hypertension and type 2 diabetes mellitus in the last 2 years. He first noticed lower extremity weakness and swelling 6 months ago. His diabetes is only partially controlled despite maximal metformin dosing and dietary changes; his blood glucose measurements at home are usually greater than 250 mg/dL. He adheres to his diet and checks his glucoses religiously. Exercise is limited by weakness. He also takes hydrochlorothiazide, lisinopril, amlodipine, and metoprolol.

ROS: Frequent colds, community acquired pneumonia in the last year, and recent history of shingles

PE: Appears chronically ill. BP 154/92 mmHg and BMI is 40. Skin shows facial hirsutism. Patient exhibits central obesity, mild proximal muscle weakness, and 2+ peripheral edema.

Labs: SCr 1.3 mg/dL, a glucose level of 244 mg/dL, and a potassium level of 2.9 meq/L.

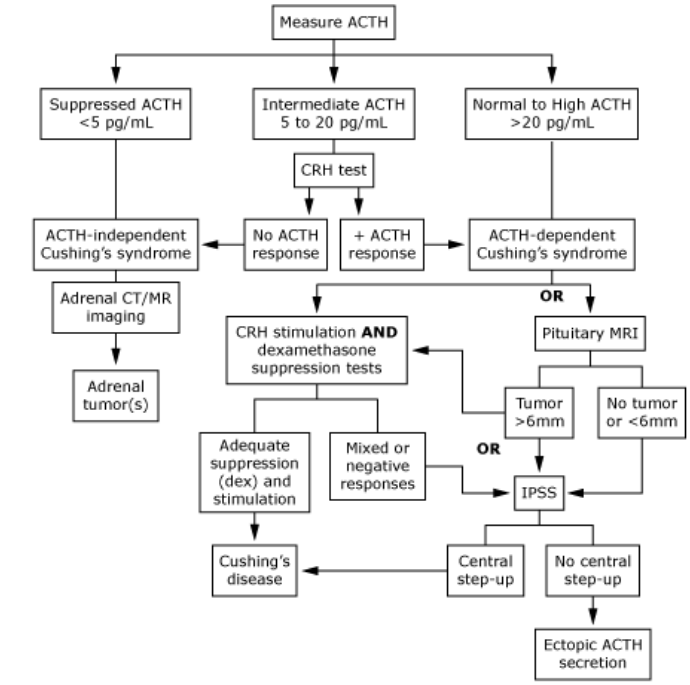
1) **What is the likely diagnosis? What about the clinical history suggests this?**

2) **Does every patient with this diagnosis present this way?**

3) **List 3 tests used to diagnose Cushing Syndrome.**

4) **Once we make the diagnosis, how do we establish the cause of Cushing Syndrome? Is it from the pituitary, ectopic, or from the adrenal gland?**

Testing to establish the diagnosis of Cushing's syndrome*



Case 3

A 40-year-old man is evaluated for an 18 month history of uncontrolled hypertension. He did not respond to atenolol and clonidine previously. There is no family history of hypertension. He has never smoked and has no other medical problems. He is not obese, exercises 4 days per week, and adheres to a Mediterranean diet. Current medications are maximum doses of hydrochlorothiazide, lisinopril, and amlodipine.

PE: 160/94 mm Hg, HR is 72/min, and remainder of exam is normal.

Labs: Significant SCr 1.1 (baseline 1.1 prior to ACEI), potassium is 3.1 meq/L, HCO3 30, and eGFR >60.

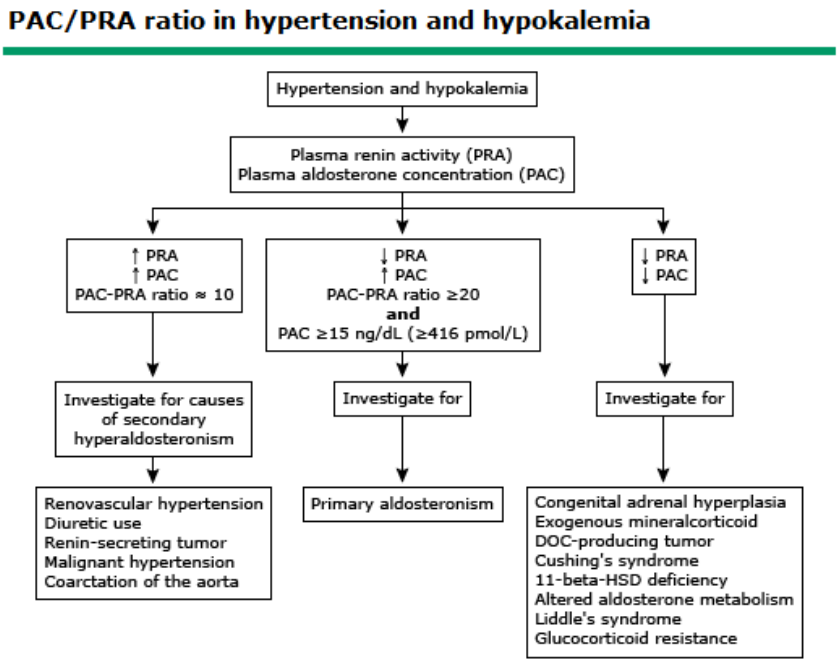
1) **What is the general problem here? How is it defined?**

2) **What's in the differential for the underlying cause?**

3) **What's the next best test?**

4) **What is the likely diagnosis?**

5) **Who should be screened for primary hyperaldosteronism?**



6) **How should our patient be treated?**

Case 4

A 47 yo male presents for a new patient appointment with a request to have his testosterone level checked. He has noted a several month history of low libido, now with erectile dysfunction. He also complains of fatigue. He says that his was working out at a gym and noted a sign about getting his "T checked."

1. **Describe your approach to a complaint of erectile dysfunction.**

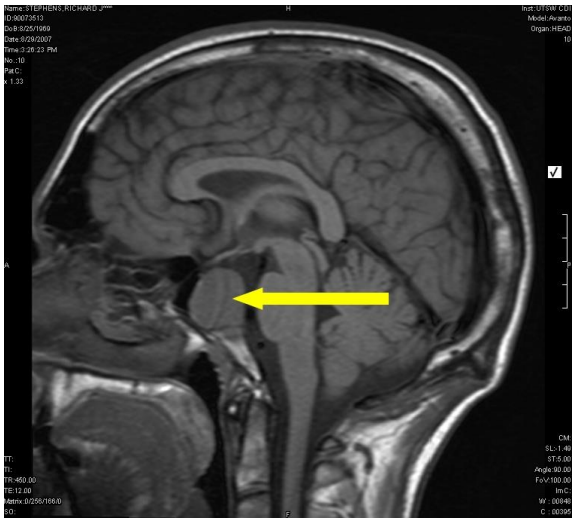
He denies any medical history and does not take any medications. He is a non-smoker, doesn't drink alcohol other than a few times a year, and denies any recreational drug use. He is married and has two children. He is worried that continued ED may eventually result in problems in his marriage, but he says that his wife has been understanding and supportive.

On review of systems, he denies increased thirst or urination, denies palpitations, depression, constipation or hyperdefecation, anxiety, changes in his skin. He does think that he has decreased body hair. He endorses increase frequency of headaches. He denies changes in his vision.

On his exam, his vital signs are all within normal limits, his BMI 24. His neurologic, cardiovascular, including femoral and peripheral pulses, and pulmonary exam are all within normal limits. There is no gynecomastia. GU exam reveals a normal appearing penis, testes are descended with normal volume and no masses. Fundoscopic, visual field, and cranial nerve examinations are normal.

2. **What are your next steps in work-up, and why?**

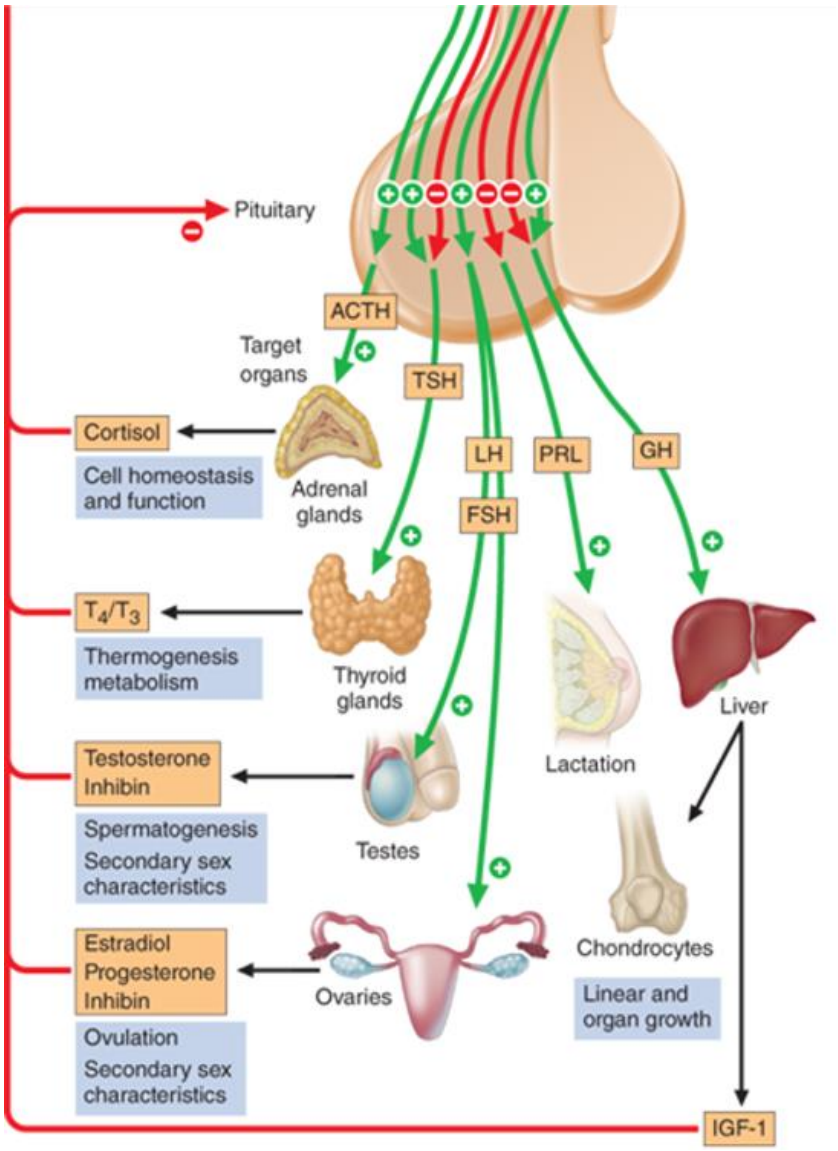
3. **What is your diagnosis, and what is your next step?**

a. 

4. **What are some causes of hyperprolactinemia?**

5. **The patient asks about treatment. What do you recommend?**

Appendix:


Pituitary
ACTH
Target organs
TSH
Cortisol
Cell homeostasis and function
Adrenal glands
LH
PRL
GH
FSH
T_4/T_3
Thermogenesis metabolism
Thyroid glands
Liver
Lactation
Testosterone
Inhibin
Spermatogenesis
Secondary sex characteristics
Testes
Chondrocytes
Linear and organ growth
Estradiol
Progesterone
Inhibin
Ovaries
Ovulation
Secondary sex characteristics
IGF-1