

## Endocrine Emergencies

### Adrenal Crisis

- Making the Diagnosis
  - Take a detailed steroid hx, include topical/intra-articular steroids, ICS + HAART
  - Risk factors to consider: anticoagulation (Waterhouse Friedrich's)
  - Primary (adrenal failure) much more common than secondary (anterior pituitary)
- Lab Testing
  - Cortisol testing may be misleading → measuring total not free cortisol
    - Less than 3 ug/dL diagnostic, random > 12 rules out in HEALTHY adults
    - Unclear what the appropriate cortisol level is in critical illness
    - Cosyntropin stim tests can be helpful in acute settings
  - Free cortisol influenced by albumin and cortisol binding globulin (CBG)
    - CBG high (false neg)– high estrogen (OCPs), hypergammaglobulinemia
    - CBG low (false positive)—nephrotic syndrome, cirrhosis
- Treatment
  - IV corticosteroids preferred early in the acute setting

### Thyroid Storm

- Making the Diagnosis
  - Possible causes: Graves, medications (amiodarone, PD-1 therapies), iodine
  - Often precipitated by a stressor (surgery, pregnancy, infection, anesthesia)
  - Clinical suspicion important as lab findings may be misleading
- Systemic Effects
  - Fevers, tachycardias, AMS, abd pain common (may mimic acute abdomen)
    - Sinus tach and afib are most common arrhythmias, but VT also possible
  - Hypercoagulability (increased fibrinogen and clotting factors)
  - Encephalitis, status epilepticus, cerebral sinus thrombosis
- Treatment – Goal is decreasing T3/T4 production and conversion of T4 to T3
  - Beta blockers (propranolol), corticosteroids, cholestyramine, PTU/methimazole
    - PTU may help reduce peripheral conversion but has liver toxicities
  - Potassium iodide or Lugol's solution (must be used with methimazole or PTU)
  - ICU options: plasmapheresis, surgery
  - AVOID salicylates (may increase free T4)
  - Pheresis and iodides may not be as effective in setting of amiodarone toxicity

### Myxedema Coma

- Keys to Diagnosis → don't need to be comatose for myxedema coma
  - Most common cause is withdrawal of therapy, need detailed thyroid hx
  - Helpful PE findings: hyporeflexia, bradycardia, obtundation, goiter, myxedema
- Critical care considerations
  - Commonly incited by infection/sepsis, also by CVA, GI bleed, sedatives (opiates)
  - Systemic effects include bradycardia/heart block, pericardial effusions, coagulation abnormalities, seizures, respiratory depression, hyponatremia
  - Prognostic factors: hypotension, bradycardia, resp failure, refractory hypothermia
- Treatment- cover for concomitant adrenal insufficiency while awaiting lab results
  - Start with IV thyroxine repletion until sure that bowels are working
  - T3 is more potent than T4 but may worsen heart disease, arrhythmias
  - Early T3 may stave off need for mechanical ventilation
  - Judicious fluid management, early antibiotics
  - Opiates will linger, avoid whenever possible