Agenda

- Opening remarks –
  - Dr. Sara Hopkins-Powell 2:00 -2:05
- Case presentation- 2:05-2:30
  - Randy Randolph, Physician Assistant
  - Nancy Cicirello, Physical Therapy
  - Tiffany Boggis, Occupational Therapy
  - Pharmacy
- Case analysis-students 2:30 – 3:00
- Case discussion 3:00-3:45
  - Randy Randolph
  - Linda Nielsen-Solares
  - Nancy Cicirello
  - Tiffany Boggis
- Wrap up 3:45 – 4:00
Patient History

- Chief complaint- “Having a hard time keeping my balance and seeing”
58 y.o. white female, presently unemployed, uninsured retail worker

History of Grave’s Disease x one year

Increasing episodes of dizziness

Has fallen several times (trouble getting out of tub)

No syncope

Last seen by Endocrinologist 2 months ago, medication decreased

Increasing blurry vision (has trouble reading prescription)
Patient History

- Review of Systems
  - No history of coronary disease, pulmonary disease, CVA, kidney disease or neurological disease
  - Occasional heartburn
  - Last eye exam-many years ago, no glasses
  - Post-menopausal

- Family History
  - None for Graves’ disease, goiter
Patient History

- Current Medications
  - Either Prophylthiouricil or mehtimazole
  - Aspirin, 160 mg. daily

- Past Surgical History
  - No prior surgeries

- Immunization History
  - No current tetanus, flu vaccine or pneumonia

- Allergies
  - Cats
  - No known medications
Patient History

Social History

- Smokes 2 packs of cigarettes per week
- Drinks two glasses of wine per week
- Denies illicit or recreational drugs
- Single mom
- Uses public transportation
- Lists family income as $0
- Lives in small apartment with teen age son in Portland
Physical Exam

- WNWD adult female in NAD, dressed appropriately, reasonably well groomed
- VS-
  - Blood pressure 108/64
  - Heart rate – 72 and regular
  - Respiratory rate – 12 and regular
  - Temperature – 98.4
  - Height/weight – 61 inches, 116 pounds
Physical Exam

- **HEENT-**
  - Ears, nose and throat exam normal
  - Eyes- No ptosis, lid lag or exophthalmos. EOM’s intact, PEERLA. No visual screen done

- **Neck**
  - Thyroid palpable, normal size and consistency. Non tender and mobile.
  - Carotids-3+ bilaterally without bruits
Physical Exam

- Lungs
  - Clear to auscultation and percussion
- Heart
  - Normal sinus rhythm
  - $S_1$ and $S_2$ normal, no murmurs, rubs, clicks or gallops
- Abdomen
  - No organomegaly or tenderness
Physical Exam

- **Musculoskeletal**
  - All groups were bilaterally symmetrical and equal in strength

- **Neurological**
  - Alert, awake and oriented times three. Conversation somewhat tangential
  - Cranial nerves intact
  - Gross peripheral neuro exam intact
  - Cerebellar function intact
  - Gait-Difficulty with heel to toe, and walking on heels/toes
Graves’ Disease

- Syndrome
  - Hyperthyroidism
  - Goiter
  - Opthamalopathy
  - Myxedema

- Etiology
  - Auto immune disorder
Graves’ Disease

- Risk factors
  - Genetic susceptibility
  - Female gender/hormones
  - Smoking
  - Drugs-Iodine, amiodorone
  - Pregnancy (within 12 months)
  - Stress
Graves’ Disease

- Clinical manifestations
  - “all systems full speed ahead”
  - **Skin**-warm and smooth, ↑ sweating, hyperpigmentation, hives, hair thinning
  - **Eyes**-Stare, lid lag, ptosis, opthamolopathy
  - **CV**-↑ Blood pressure, heart rate, pulse pressure, congestive failure, atrial fibrillation
  - **Pulmonary**-Dyspnea, asthma, tracheal obstruction
  - **GI**-Weight loss, hyperdefecation, malabsorption
Graves’ Disease

Clinical manifestations

- **GI**-Frequency, nocturia, oligomenorrhea, infertility, gynecomastia, erectile dysfunction
- **Neurological**-Tremor, proximal muscle weakness, episodic paralysis, MD
- **Psychiatric**-Hyperactivity, emotional lability, anxiety, inability to concentrate, insomnia
- **Other**-Anemia, osteoporosis/fracture, ↓ lipids and cholesterol
Diagnosis/Treatment

- Diagnosis
  - ↓ TSH, ↑ T₃ & T₄

- Treatment
  - Thyroid suppression (Thionamidies)
  - Radioactive Iodine
  - Surgery
Exophthalmos
Medications for Graves’ Disease

- **Thionamides**
  - **Agents**
    - Propylthiouracil (PTU)
    - Methimazole (Tapazole)
  - **Efficacy**
    - Variable cure rate (10 – 95%)
    - Predictors of long-term remission
      - > 40 yo
      - Mild cases
      - Smaller goiters
      - Patient adherence
Mechanism of Thionamides

- Prevents iodination
- Prevents coupling
- Prevents deiodination of T₄ (PTU only)

Adverse Effects of Thionamides

- **Common**
  - Allergic reactions; maculopapular rash
  - Leukopenia (WBC < 4000/mm³)
  - Arthralgias and fever
  - GI upset

- **Severe**
  - Agranulocytosis (WBC < 250/mm³) w/ symptoms
  - Hepatotoxicity
  - Other auto-immune diseases
    - Vasculitis
    - Polymyositis
    - Lupus-like syndrome

Cost of Medication Therapy

- Methimazole 10 mg Tablets
  - 10 mg po TID → 30 mg/day → $60/month

- Propylthiouracil 50 mg Tablets
  - 100 mg po TID → 300 mg/day → $30/month