Thyroid Physiology, Pharmacology, & Pharmacotherapy  
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Thyroid Hormones (T3, T4)  
- Control body temperature, development of the central nervous system and brain, heart rate, muscle contractility, glucose metabolism, protein metabolism, lipoprotein metabolism, bone density.
- Inadequate T3/T4: hypothyroidism (fatigue, cold intolerance, weight gain, depression, decreased appetite), TSH elevation.
- Excess T3/T4: hyperthyroidism (weight loss, increased appetite, palpitations, heat intolerance, tremor, nervousness).

Factors possibly requiring DOWNWARD dosage adjustment:
- T4/T3 combinations  
  - TSH response is faster when adjusting/stopping and symptomatic hypothyroidism is shorter. See below re: PREGNANCY TIMING with T4 monotherapy <0.5 or undetectable.

Management of Primary Hypothyroidism  
with Protirelin (TRH, Relefact TRH). Usually also need to replace other pituitary hormones.

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Drugs Chron/dosage adjustments. In non-responsive pituitary  
- Lithium: 1g/d dosing. In non-responsive pituitary  
- Amiodarone: 1200 mg PO/NG q4h if cortisol low (some recommending giving  

Subclinical Hypothyroidism  
- Total T4 normal, TSH elevated. Usually transient, but may worsen with thyroid function.
- Treatment: Thyroid hormone replacement (T4 monotherapy). Usually euthyroid @ 6 months.

Physical signs of hypothyroidism: 
- Thyroid enlargement (goiter)  
- Decreased pulse rate, bradycardia  
- Systolic blood pressure  
- Increased diastolic blood pressure  
- Cold peripheries  
- Increased appetite  
- Increased bowel movements  
- Decreased sweating  
- Increased body weight  
- Increased body temperature  
- Increased vocal pitch  
- Increased hair growth  
- Increased menstrual flow  
- Increased libido  

Management of amiodarone hyperthyroidism  
- Iodine: MIT and DIT binding to thyroglobulin inhibited by large doses of Iodine
  - "Wolff-Chaikoff" effect.
  - Less effective if given post-thyroidectomy.

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Amiodarone

Thyroid 2004;14:525  

Common adverse effects of L-thyroxine:  
- Gastrointestinal: nausea, vomiting, bloating, diarrhea

- Thyroid stimulating hormone (TSH, thyrotropin):  
  - Three major functions:  
    1. Stimulation of the thyroid gland  
    2. Regulation of the synthesis and release of thyroid hormones  
    3. Induction of the synthesis and release of thyroglobulin

Thyroid monitoring in all patients to detect overt hypothyroidism.  

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