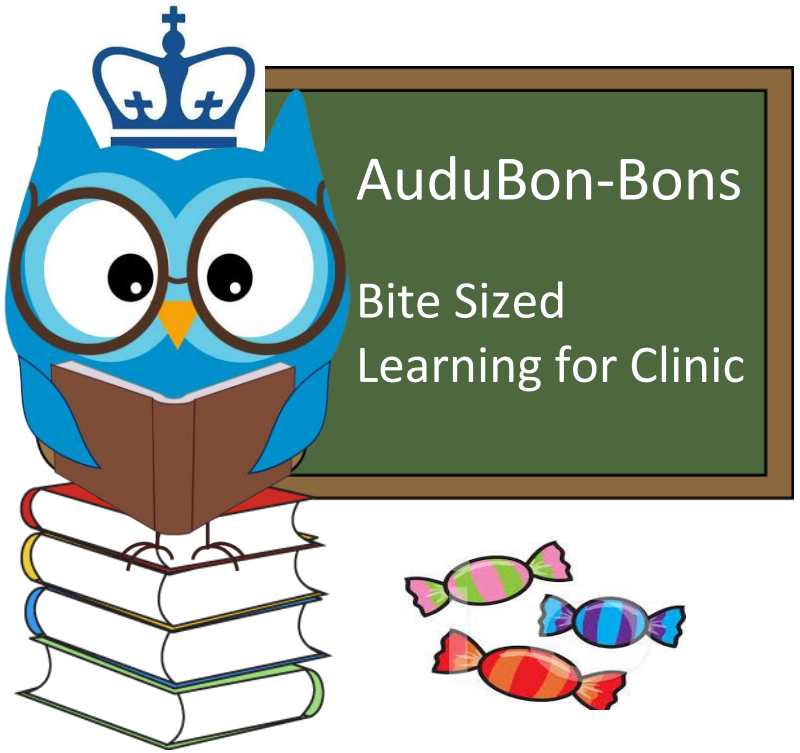
PNC: THYROID DISEASE



Week 93

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Reading Assignment:
ACOG Practice Bulletin #223
Thyroid Disease in Pregnancy

LEARNING OBJECTIVES

- To understand the changes in thyroid function during pregnancy
- To be able to diagnose and counsel patients on hypothyroidism in pregnancy
- To be able to diagnose and counsel patients on hyperthyroidism in pregnancy

CASE VIGNETTE

- Ms. Oak, a 31 y.o. G1P0 woman at 9 weeks EGA presents to clinic to establish prenatal care. She is also concerned because is about to finish her last refill of levothyroxine.

FOCUSED HISTORY

What elements of the patient's history are most relevant?

- **PMH:** **Hypothyroidism. She was diagnosed 3 years ago when she presented to her PCP with fatigue, dry skin, and hair loss. Last TSH was 2 months ago and was 1.75 MIU/L.**
- **PSH:** Tonsillectomy at age 11
- **POBH:** G1P0
- **PGYNH:** Regular menses prior to pregnancy. Denies history of STIs or abnormal paps. Up to date on pap. Sexually active with mutually monogamous male partner. Denies history of fibroids or cysts.
- **MEDS:** Levothyroxine 125mcg daily
- **All:** NKDA
- **FH:** Mother with T2DM
- **SH:** Denies tob, drug, etoh use. Denies IPV. Works as an Uber driver. Accepts blood products

PERTINENT PHYSICAL EXAM FINDINGS

What elements of the patient's physical exam are most relevant?

- **General:** Well appearing woman, VSS
- **CV:** RRR
- **Resp:** CTAB
- **Abd:** Soft, ND, NT, no rebound or guarding
- **Vulva:** Normal external female genitalia. No lesions.
- **Vagina:** Pink, healthy mucosa.
- **Cervix:** Closed os. No lesions. No bleeding. No CMT.
- **Uterus:** NT. Anteverted. S=D
- **Adnexae:** NT. No masses palpable.
- **Bedside U/S:** Anteverted uterus, SIUP c/w 9 weeks gestation, FHR 160s bpm

CHANGES IN THYROID FUNCTION DURING PREGNANCY

How does thyroid function change during pregnancy?

- Maternal total or bound thyroid hormone increases with serum concentration of thyroid-binding globulin
- **First Trimester TSH**
  - The level of TSH decreases because of weak stimulation of TSH receptors caused by hCG
- **Second Trimester TSH**
  - TSH levels return to baseline
- **Third Trimester TSH**
  - TSH levels progressively increase related to placental growth and production of placental deodinase

HYPOTHYROIDISM

What is the prevalence of hypothyroidism during pregnancy?

- **Overt hypothyroidism complicates 2-10 per 1000 pregnancies**

How do you diagnose hypothyroidism?

- TSH above the upper limit of normal
- Free T4 below the lower limit of normal

What is the most common cause of hypothyroidism?

- Hashimoto thyroiditis
  - Characterized by glandular destruction by autoantibodies particularly antithyroid peroxidase antibodies

HYPOTHYROIDISM

What are the perinatal risks of overt untreated maternal hypothyroidism?

- Spontaneous abortion, preeclampsia, preterm birth, abruption placenta, IUFD

What are the signs and symptoms of hypothyroidism?

- Fatigue, constipation, cold intolerance, muscle cramps, and weight gain

What are the fetal and neonatal risks of overt untreated maternal hypothyroidism?

- Low birth weight and impaired neuropsychologic development

Can maternal thyroid inhibitory antibodies cross the placenta and cause fetal hypothyroidism?

- This is only a rare occurrence, 1 in 180,000 neonates

HYPERTHYROIDISM

What is the prevalence of hyperthyroidism during pregnancy?

- **Overt hyperthyroidism occurs in 0.2- 0.7% of pregnancy**

How are signs and symptoms of hyperthyroidism?

- Nervousness, tremors, tachycardia, frequent stools, excessive sweating, heat intolerance, weight loss, goiter, insomnia, palpitations, and hypertension
- Distinctive features of Graves disease are ophthalmopathy (lid lag and lid retraction) and dermopathy (localized or pretibial myxedema)

How do you diagnosed hyperthyroidism?

- TSH below the upper limit of normal
- Free T4 above the lower limit of normal

What is the most common cause of hyperthyroidism?

- Graves disease
  - Accounts for 95% of cases of hyperthyroidism in pregnancy

HYPERTHYROIDISM

What are the perinatal risks of overt untreated maternal hyperthyroidism?

- Preeclampsia with severe features, maternal heart failure, and thyroid storm

What are the fetal and neonatal risks of overt untreated maternal hyperthyroidism?

- Medically-indicated PTD, low birth weight, miscarriage, and IUFD
- Graves disease risks are related to both disease itself and the treatment of the disease

Can maternal antibodies related to Graves disease cross the placenta?

- **Yes!** Fetal thyrotoxicosis is possible
  - Manifests as fetal tachycardia and poor fetal growth

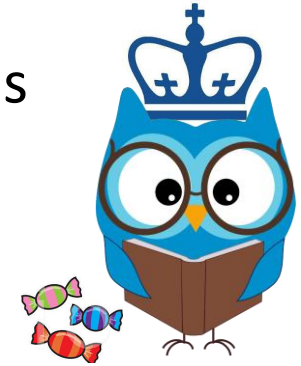
HYPERTHYROIDISM

What medications should be used to treat hyperthyroidism in pregnancy?

- Antithyroid drugs known as thioamides
  - **Propylthiouracil** or **Methimazole**

Can both be used in the first trimester?

- **No!**
  - *Methimazole is avoided in the first trimester because it has been associated with rare embryopathy characterized by esophageal or choanal atresia as well as aplasia cutis*
- In rare cases PTU results in clinically significant hepatotoxicity which has prompted some physicians to transition to methimazole after the first trimester



SOCIAL DETERMINANTS OF HEALTH

Primary Congenital Hypothyroidism (CH)

- Primary congenital hypothyroidism is a preventable cause of intellectual disability
- In one study that evaluated incidence of CH from 1991-2000, the diagnosis of CH increased by 3% per year for a total of 30.4% increase over the decade
- In California, the increase was most notable in Latinx newborns

Screen your patients for hypothyroidism with clinical symptoms, personal or family history of thyroid disease, or Type I diabetes.

Identifying and treating your hypothyroid patients will help prevent CH.

EPIC .PHRASE

.BBonHypothyroidPregnancy

Description: Hypothyroidism in Pregnancy

We discussed the diagnosis of hypothyroidism in pregnancy and the importance of close follow-up throughout her pregnancy. The patient understands the risks of untreated overt hypothyroidism including the risks to her as well as her fetus. She understands we will check her thyroid levels (TSH, fT4) on intake, and repeat every trimester if normal. If we need to make adjustments to her medication, we will repeat the values every month.

.BBonHyperthyroidPregnancy

Description: Hyperthyroidism in Pregnancy

We discussed the diagnosis of hyperthyroidism in pregnancy and the importance of close follow-up throughout her pregnancy. She understands the risks of untreated overt hyperthyroidism including the risks to her as well as her fetus. She understands we will check her thyroid levels (TSH, fT4) and antibodies (anti-TPO and TSH receptor antibody) on intake, and repeat her TFTs every trimester if normal. She agrees to have an Endocrinology referral, and understands her care will be transferred to Perinatal Clinic if she requires medication management.

CODING AND BILLING

- **ICD-10 Code**
  - O99.2
    - Endocrine, nutritional and metabolic diseases complicating pregnancy, childbirth and the puerperium
  - **CPT Code**
    - 99214
      - Office or other outpatient visit for the evaluation and management of an established patient, which requires at least two of these three key components:
        - A detailed history; a detailed examination; medical decision making of moderate complexity.
        - Counseling and/or coordination of care with other physicians, other qualified health care professionals, or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs.
        - Usually, the presenting problem(s) are of moderate to high severity.
        - Typically, 25 minutes are spent face-to-face with the patient and/or family.

EVIDENCE

Trends in incidence rate of congenital hypothyroidism related to select demographic factors: data from the United States, California, Massachusetts, New York and Texas. Pediatrics. 2010 May;125 Suppl 2:S37-47. doi:10.1542/peds.2009-1975D.

Thyroid disease in pregnancy. ACOG Practice Bulletin No. 223. American College of Obstetricians and Gynecologists. Obstet Gynecol 2020;135:e261-74.