Thyroid disease in Pregnancy

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Incidence

• Hyperthyroidism is in 0.2-0.7% of pregnancies

• 0.8-1.7% of pregnancies are complicated by subclinical hyperthyroidism

• 2-10/1000 pregnancies are complicated by hypothyroidism

• Subclinical hypothyroidism: 2-5% of pregnancies
## Physiology

### Table 1. Changes in Thyroid Function Test Results During Uncomplicated Pregnancy and in Pregnant Women with Thyroid Disease

<table>
<thead>
<tr>
<th>Maternal condition</th>
<th>Thyroid-stimulating hormone</th>
<th>Free thyroxine index</th>
<th>Total thyroxine</th>
<th>Triiodothyronine</th>
<th>Resin triiodothyronine uptake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperthyroidism</td>
<td>Decrease</td>
<td>Increase</td>
<td>Increase</td>
<td>Increase or no change</td>
<td>Increase</td>
</tr>
<tr>
<td>Hypothyroidism</td>
<td>Increase</td>
<td>Decrease</td>
<td>Decrease</td>
<td>Decrease or no change</td>
<td>Decrease</td>
</tr>
<tr>
<td>Normal pregnancy</td>
<td>Decrease</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Decrease</td>
</tr>
</tbody>
</table>

*Adapted with permission from American College of Obstetrics and Gynecology. ACOG practice bulletin no. 37. Thyroid disease in pregnancy. Obstet Gynecol. 2002;100(2):388.*
<table>
<thead>
<tr>
<th>TSH Range of normal</th>
<th>1st Trimester</th>
<th>2nd Trimester</th>
<th>3rd Trimester</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.1-2.5 mIU/L</td>
<td>0.2-3.0 mIU/L</td>
<td>0.3-3.0 mIU/L</td>
</tr>
</tbody>
</table>

NON-PREGNANT: 0.3-4.3 mIU/L

Diagnosis

• Screen in women with T1DM, clinical suspicion, or family hx
Thyroid Disease in Pregnancy. ACOG Practice Bulletin 223. 2020
Management

- Hyperthyroidism: treat with anti-thyroid drugs
  - First trimester: propothiouracil
  - Second/third trimester: methimazole
  - Propranolol: can be used for symptoms of palpitations
- Manage in conjunction with endocrine or MFM
- **GOAL:** free T4 in high normal range
Management

• Hypothyroidism: T4 replacement with levothyroxine

  - Can expect a 25% increase in T4 requirements in patient with known hypothyroidism when becomes pregnant

  - Monitor TSH every 4-6 weeks when titrating medication
Pregnancy Complications

• Thyroid storm: Symptoms: fever, tachycardia, nervous system dysfunction

• Treatment: **DO NOT** withhold while waiting for lab results!
  - Propothiouracil (oral then IV), iodine (lithium if iodine allergy), steroids
  - **AVOID** delivery: fetus will improve as mother improves

• 9% of pregnant women with hyperthyroidism develop heart failure/cardiomyopathy
  - Can be reversible!
No indication for earlier delivery

If hyperthyroidism not controlled, weekly antepartum testing starting at 32-34 weeks
Postpartum management

Decrease synthroid dose to pre-pregnancy dose over four weeks

Breastfeeding is ok with thionamide medications
Postpartum thyroiditis

- Occurs in 5-10% of women within 12 months of delivery
- First phase is destruction of thyroid gland and hyperthyroid symptoms
  - can use beta blockers to help symptoms
- Second phase is hypothyroid phase
- 3.6% progress to permanent hypothyroidism
Cases
Case 1

30yo G1P0 at 16.3 weeks GA with hx of T1DM presents for prenatal follow up appointment. Patient reports that she has been experiencing palpitations and hair loss.

What to do next?
- Order TSH to screen for thyroid disease
- Second trimester
- Methimazole for treatment
Case 2

25yo with pmhx of hypothyroidism sends you a message requesting a visit for a positive home pregnancy test.

No other pmhx aside from hypothyroidism

Has been stable on 75mcg synthroid daily for over 4years
What do you do?

Advise to take two 75mcg tablets Monday and Wednesday until your appointment.
Case 3

32yo G1P1 presents for her 6 week postpartum follow up visit.

Reports palpitations, some hair loss.

TSH is low and free T4 is elevated on labs.
Hyperthyroid phase of post partum thyroiditis

Treat symptoms with propranolol

Recheck in 4-8 weeks
References

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• Rad SN, Deluxe L. Pospartum Thyroiditis. *NCBI Bookshelf.* 2021
• Thyroid Disease in Pregnancy. *ACOG Practice Bulletin* 223. 2020