Thyroid

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SPECIAL ARTICLE

2017 Guidelines of the American Thyroid Association for the Diagnosis and Management of Thyroid Disease During Pregnancy and the Postpartum

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Guidelines

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2018 European Thyroid Association Guideline for the Management of Graves' Hyperthyroidism

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Hypothyroidism in Pregnancy

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Clinical update: Hypothyroidism in Pregnancy **Take home messages**

Additional evidence supportive for more relaxed TSH targets for those with

NO HISTORY OF THYROID DISEASE

Overt hypothyroidism (TSH ≥ 10 mIU/L)

- Commence Thyroxine 75-100 microg PO daily
- TSH repeat at 4 weeks
- **Refer to Endocrine for assessment if not responding to treatment**

Pre-existing treated hypothyroidism

- Before pregnancy: TSH 0.5-5.5 mIU/L
  - * *Recurrent miscarriage TSH 0.5 - 2.5 mIU/L*
- When pregnancy confirmed:

Trimester	TSH range
First	0.1 - 2.5 mIU/L
Second	0.2 - 3.0 mIU/L
Third	0.3 - 3.0 mIU/L

- Refer all women with previous Graves' disease

New finding of TSH 2.5 – 4.0 mIU/L in first trimester

- **Previously "abnormal"**
- **Routine initiation of thyroxine no longer recommended.**
- TPO Ab only if positive family history autoimmune disease
- TSH measurement (only if indicated by clinical picture) not < 4 weekly.

New finding of TSH 4.1 – 9.9 mIU/L Endocrine Society of Australia guidance:

- Thyroxine 50 microg daily
- TSH no more frequent than 4 weekly
- Thyroxine adjustments 25-50 micrograms/day
- TPO Ab when clinically indicated (if positive, more likely to have persistent hypothyroidism post partum)
- TSH range as for pre-existing hypothyroidism

Pregnancy

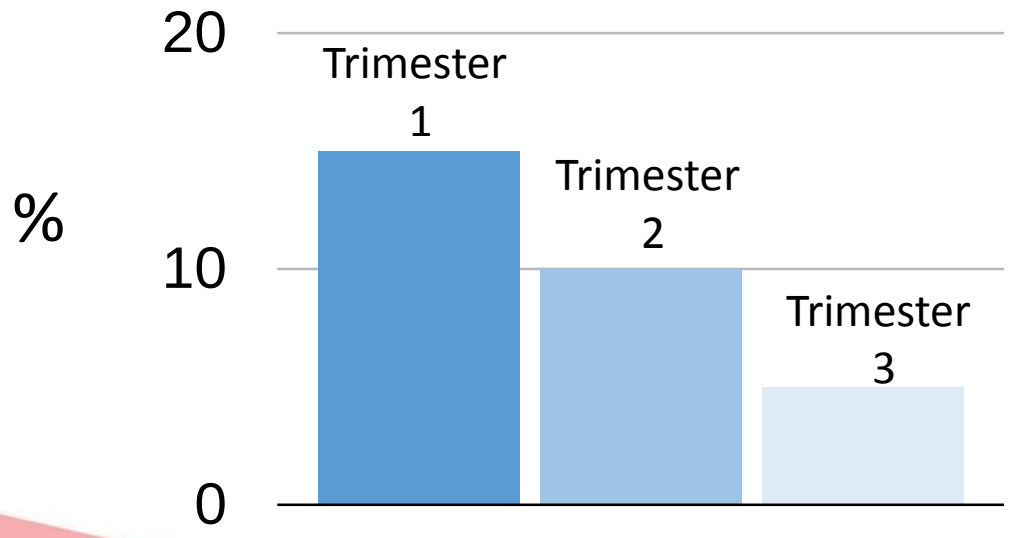
- What are the normal changes to thyroid function?
- What is the normal lower limit of TSH?
- What is the normal upper limit of TSH?
- What is the impact of subclinical hypothyroidism on pregnancy outcomes?
- What is the impact of thyroid antibodies?
- How much should thyroxine be increased?

Thyroid hormone changes in normal pregnancy

- 50% increase T4, T3, and iodine requirements
- Placental bHCG directly stimulates thyroid TSH receptors, reducing TSH requirements
- T4 and THBG increased by 7/40

What is the lower limit of "normal" TSH?

- Proportion of *healthly* pregnancies with TSH <0.4 mIU/L (Caucasian populations)



What is the upper limit of "normal" TSH?

- New guideline – published data >60,000 pregnancies

- Multiple influencers of TSH
    - Geography (iodine status)
    - Ethnicity (population specific ranges)
    - bHCG influencers
    - BMI
    - Thyroid Ab status

What is the impact of subclinical hypothyroidism in pregnancy?

- Studies have looked at miscarriage, premature delivery, neurocognitive development

- Conflicting results make difficult to compare, overall clear evidence is lacking

What is the ideal TSH range for women receiving IVF/ICSI?

- Moderate evidence for target TSH 0.5-2.5 mIU/L (irrespective of Ab status)

What is the impact of Anti-TPO & Tg Antibodies on pregnancy?

- Not uncommon: 2-17% unselected pregnancies in US (mostly Caucasian & Asian)
- Higher likelihood of TSH elevation by end of pregnancy

- **?**↑ pregnancy loss above normal.
- **?** Cause and effect. Possibility of other antibodies affecting placental function?

Any history of Graves' disease

- Referral to Endocrine Service recommended

- TSH Receptor Ab may remain positive
- ALWAYS check at beginning of pregnancy even if rendered hypothyroid
- Strongly positive antibodies means that fetal monitoring will be required in 3rd trimester

For women requiring treatment what increase in thyroxine dose is required?

- About 75% need thyroxine increase in pregnancy
  - Lower increase in requirements: Hashimoto's
  - Greater increase in requirements: Athyroid (thyroidectomy/RAI)

- Acceptable methods of treatment escalation
  - 50 microg/day increase
  - Initial 25-30% increase
  - Additional 2 tablets per week

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Graves' Hyperthyroidism

Take Home Messages

- After confirming hyperthyroidism check TSH Receptor Antibody status
- TRAb positive: USS recommended
  (not thyroid uptake scan)
- Commence ATD according to thyroid status

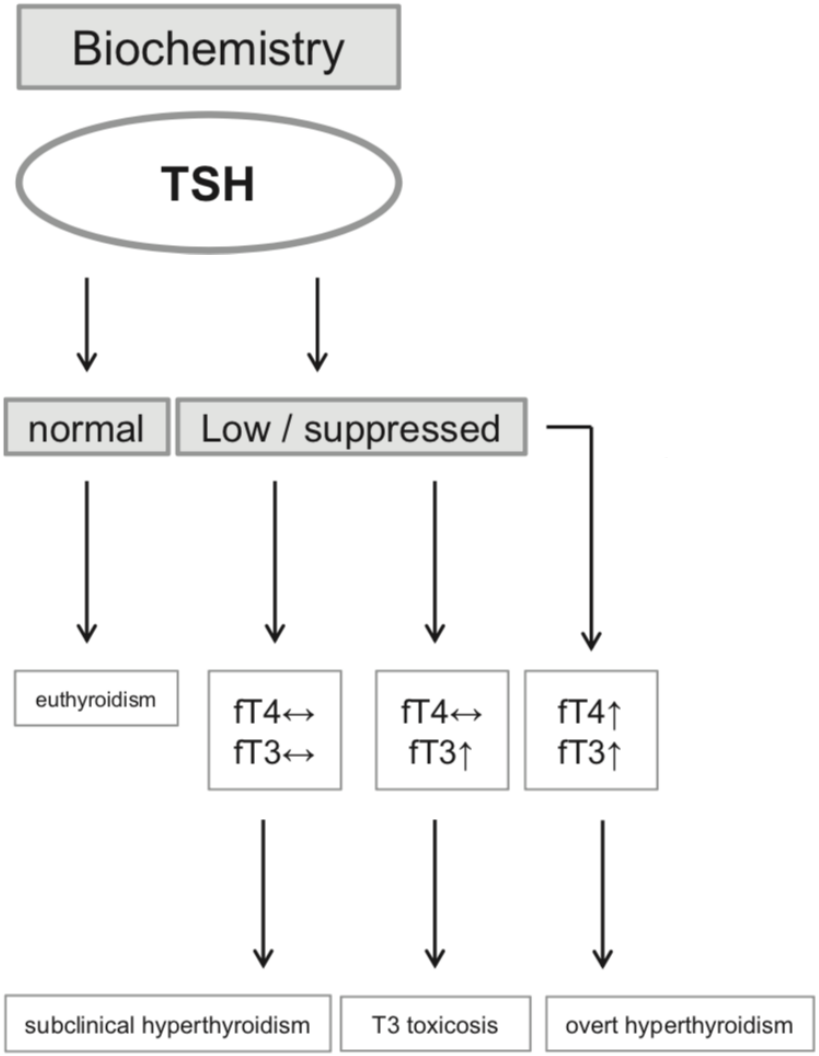


Fig. 1. Algorithm for investigating a patient with suspected Graves' hyperthyroidism.

Dosing Carbimazole (CBZ)

- Subclinical hyperthyroidism: no treatment; refer
- T3 Thyrotoxicosis: CBZ 20 mg daily
- Moderate Hyperthyroidism (T4 20-30 pmol/L): CBZ 20 mg
- **Severe Hyperthyroidism (T4 >30 pmol/L): CBZ 40 mg**

Table 3. Adverse events of antithyroid drugs

Common (1.0–5.0%)
Skin rash
Urticaria
Arthralgia, polyarthritis
Fever
Transient mild leukopenia
Rare (0.2–1.0%)
Gastrointestinal
Abnormalities of taste and smell
Agranulocytosis
Very rare (<0.1%)
Aplastic anemia (PTU, CBZ)
Thrombocytopenia (PTU, CBZ)
Vasculitis, lupus-like, ANCA+ (PTU)
Hepatitis (PTU)
Hypoglycemia (anti-insulin Abs; PTU)
Cholestatic jaundice (CBZ/MMI)

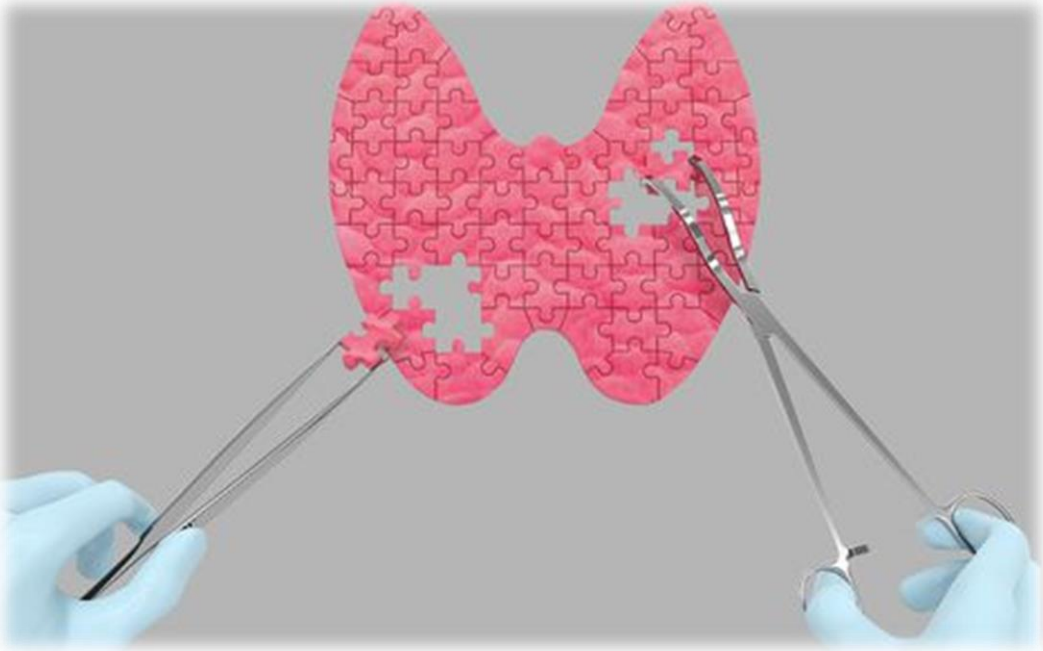
PTU, propylthiouracil; MMI, methimazole; CBZ, carbimazole; ANCA, antineutrophil cytoplasmic antibody.

B blockers

- Propranolol 20-40 mg 6 hourly (start low)
- Doses > 40 mg inhibit peripheral conversion T4 to T3
- Asthma/AF consider:
  - Cardioselective metoprolol 12.5-25 mg
  - Calcium channel blocker diltiazem 30 mg TID

Graves' pregnancy

- **Euthyroidism > 2 months before conception**
  - Delay conception by 6/12 after RAI
- PTU for 1st trimester
- TRAb negative: relapse unlikely during pregnancy
- TRAb positive: usually dissipate by 3rd Trimester.
- Risk of recurrence highest 7-9/12 post partum



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