Thyroid Function Tests

Disclaimer

Contents

Thyroid Function Tests 2
Thyroid dysfunction risk factors 2
Signs and symptoms of thyroid dysfunction 2
Abnormal results 3
Available tests 3
Order of testing 4
Reconsider the clinical picture 4
Information 5
For health professionals 5
Sources 5

Thyroid Function Tests

1. If asymptomatic without risk factors, do not routinely screen for thyroid dysfunction.
2. If there is a clinical suspicion of thyroid function disorder, or if symptoms or risk factors are present, perform tests.
3. Consider:
    - ***thyroid dysfunction risk factors***

Thyroid dysfunction risk factors

- *Disease history:*
    - *Personal or family history of thyroid disease*
    - *Autoimmune disease – type 1 diabetes, Addison's disease, pernicious anaemia, coeliac disease*
    - *Down's syndrome or Turner syndrome*
- *Head and neck trauma:*
    - *Pituitary or hypothalamic abnormality including severe head injury*
    - *History of head and neck irradiation, radical neck surgery, previous thyroid surgery*
- *Drug therapies: Lithium and amiodarone, cytotoxic medication, tyrosine kinase inhibitors, iodine excess (e.g., radiocontrast, kelp supplements), interferon, T-cell immunomodulatory antibodies (e.g., for treatment of multiple sclerosis and cancer immunotherapy)*
- *Women:*
    - *Aged > 55 years*
    - *Post-partum (6 weeks to 6 months) with suggestive symptoms*
    - *Seeking fertility treatment*
- *Other: Positive thyroid peroxidase (TPO) antibodies*

    - ***Signs and symptoms of thyroid dysfunction***

Signs and symptoms of thyroid dysfunction

- *Agitation and anxiety*
- *Confusion, depression, nervousness, or tremor*
- *Constipation or diarrhoea*
- *Dry skin*
- *Goitre*
- *Hair loss*
- *Heart rate abnormalities*
- *Heat or cold intolerance*
- *Hypertension*
- *Lethargy, fatigue*
- *Menstrual irregularities*

- *Weight gain or loss*
- *Widened pulse pressure*

- ***Abnormal results***

Abnormal results

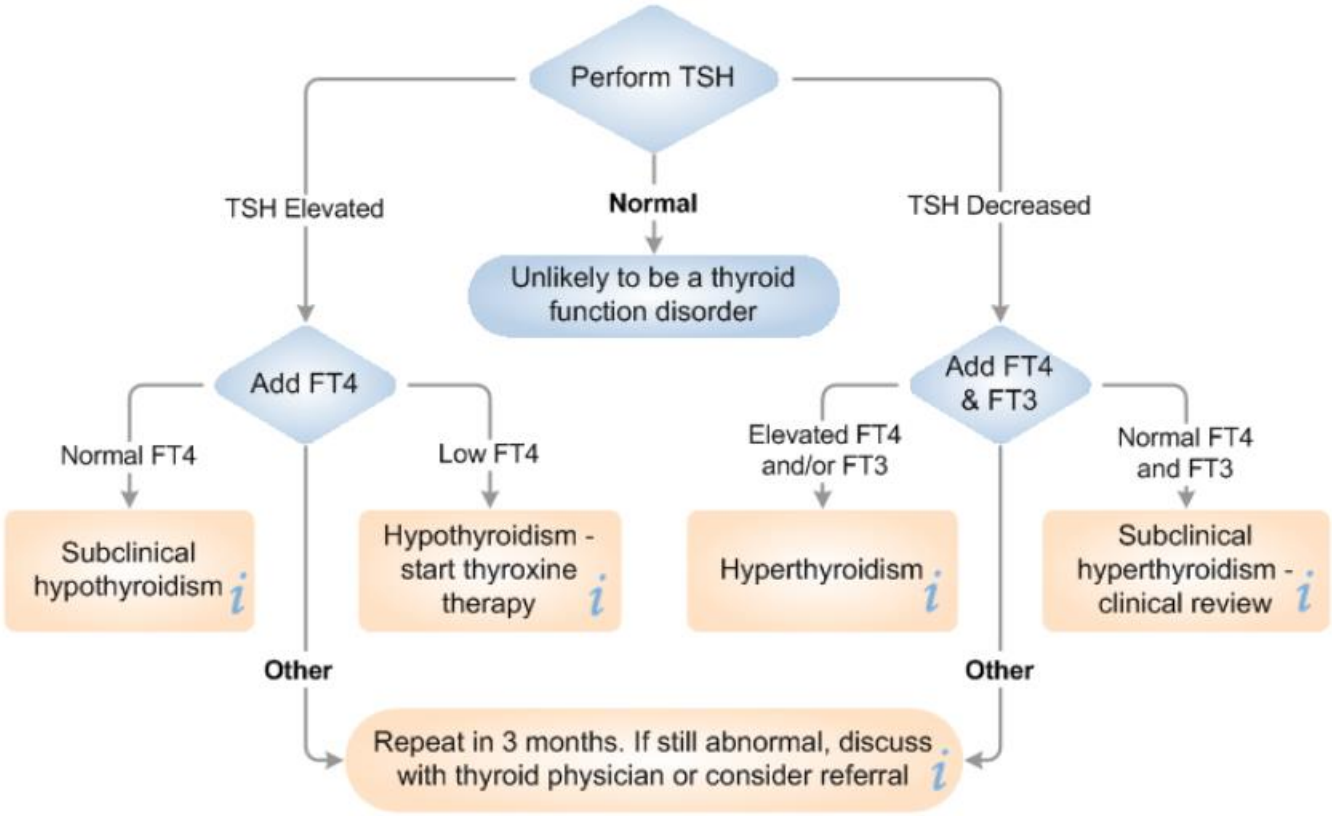
- *Overt biochemical hypothyroidism – prevalence up to 2% of population, 10 times more common in women.*
- *Subclinical hypothyroidism elevated TSH (thyroid-stimulating hormone) and a normal FT4 level – prevalence up to 17%, in older women.*
- *Hyperthyroidism – prevalence 1%, 10 times more common in women in iodine replete areas.*
- *Subclinical hyperthyroidism (low TSH and normal FT4 and FT3) – prevalence around:*
  - *1% in men aged < 60 years, and*
  - *1.5% in women aged < 60 years, and higher in older people.*

Available tests

- Thyroid-stimulating hormone (TSH):
  - When clinical findings suggest thyroid disease or if increased risk of thyroid disease (screens are Medicare-funded).
  - It is a sensitive marker of thyroid function in patients on replacement therapy.
- Free thyroxine (FT4) if:
  - TSH is elevated (sub-clinical hypothyroidism).
  - TSH < 0.3 to 0.5 mIU/L (hyperthyroidism).
- Free triiodothyronine FT3 is rarely required:
  - Potential thyrotoxicosis with suppressed TSH and normal FT4
  - Early recurrence of thyrotoxicosis
  - During antithyroid therapy
  - Patient has amiodarone-induced thyrotoxicosis
- Thyroid antibodies (Ab) and markers of autoimmune thyroid disease, including Hashimoto's and Grave's disease:
  - Also known as thyroid microsomal or thyroid peroxidase and thyroglobulin antibodies.
  - Use in:
    - investigation of abnormal thyroid function to detect autoimmune thyroid disease.
    - investigation of post-partum or sub-acute thyroiditis.
    - investigation of unexplained ophthalmopathy or myopathy.

Note that they occur in low titre in up to 20% of the normal elderly population. [1]

Order of testing



Note: If an abnormal thyroid result, particularly with small variations from normal, it is important to ***reconsider the clinical picture***.

Reconsider the clinical picture

- *Some results may show variation due to a resolving non-thyroid illness, or biological, and analytical variation.*
- *Acutely ill patients may have an altered TSH.*
- *Consider retesting in 4 to 6 months.*
- *Beware of patients using high dose biotin e.g., multiple sclerosis, as this may interfere with some assay platforms. Cease biotin and recheck thyroid function tests (TFTs) after 3 to 4 days.*

See also bpacnz – Investigating Thyroid Function.

Information

For health professionals

Education

- BMJ Learning [requires registration] – Abnormal Thyroid Function Tests Despite a Well Patient: A Guide to Management

Further information

- Australian Prescriber – Thyroid Function Tests
- bpacnz:
  - Investigating Thyroid Function
  - Management of Thyroid Dysfunction in Adults

Sources

References

1. Royal College of Pathologists of Australasia Manual. [place unknown]: Royal College of Pathologists of Australasia Manual; Thyroid Ab. [date unknown].

Last Reviewed: April 2018

Disclaimer