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HEALTHCARE MANAGEMENT

Thyroid Stimulating Hormone (TSH) Guidelines

Table of content

Thyroid Stimulating Hormone (TSH) Thyroid conditions	Hypothyroidism, Aetiology, Hashimoto Hyroiditis, Normal TSH levels?	TSH - TEST Indication, TSH On Pregnancy & Cancer, CCN Guidelines For Thyroid Cancer TSH During Chemotherapy
Page 1	Page 2	Page 3

Thyroid Stimulating Hormone (TSH)

The thyroid gland is part of the endocrine system (along with the adrenal glands, hypothalamus, pituitary, ovaries, and testes). The thyroid gland releases hormones into the bloodstream to control body metabolism, which is the primary way for body uses energy and stores hormones that help regulate the heart rate, blood pressure, body temperature, and the rate at which food is converted into energy.

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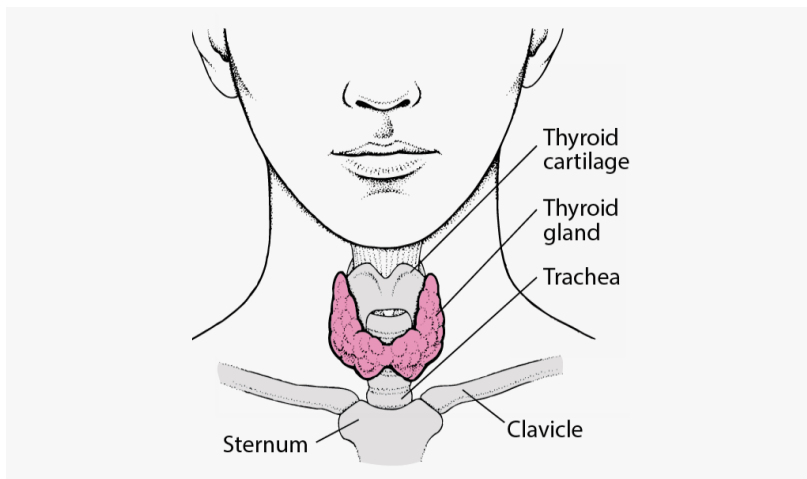
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Thyroid conditions

1. Goiter.
2. Thyroiditis
3. Hyperthyroidism
4. Hypothyroidism
5. Graves disease
6. Thyroid cancer
7. Thyroid nodule
8. Thyroid storm

Thyroid Stimulating Hormone (TSH)

Hypothyroidism

Underactivity of thyroid gland may be primary, from disease of thyroid gland, or much less commonly, secondary to hypothalamic or pituitary disease (secondary hypothyroidism)

Hypothyroidism affects 0.1-2 % of the population, it is much more in women
And the most common cause of primary thyroid failure in iodine-replete area of the world

Symptoms

- | | |
|--------------------|---------------------------------|
| 1 fatigue | 6-slow heart rate (bradycardia) |
| 2 weight gain | 7-dry skin |
| 3 depression | 8-impaired memory |
| 4 constipation | 9-muscle weakness |
| 5 cold intolerance | 10-pain and stiffness in joint |

Aetiology

1 Iodine deficiency

Still exists in some area , particularly mountainous areas (alps , Himalayas , south America)

2 Post partum thyroiditis

Is normally transient and can cause hypo or hyperthyroidism or both , if conventional antibodies are present there is high chance of proceeding to permanent hypothyroidism

3 Drug induced

As result of carbimazole , lithium , amiodarone and interferon 4-congenital Related to thyroid aplasia or dysplasia or defective synthesis of thyroid hormones

Hypothyroidism

Hyperthyroidism (thyroid overactivity, thyrotoxicosis) common affecting 2-5% of all women at same time, mainly between the age of 20 and 40 years

There is three intrinsic thyroid disorders account for majority case of hyperthyroidism :

1. Graves disease
2. Toxic adenoma
3. Toxic multinodular goiter

Rare cause is :

1. Viral thyroiditis (de Quervians)
2. Metastatic differentiated thyroid carcinoma

Aetiology

1 Graves disease

Most common cause of hyperthyroidism , it is result OF IgG antibodies binding to TSH receptor and stimulating thyroid hormone production

2 Toxic multinodular goitre

It commonly occur in older women , and drug therapy is rarely successful in inducing prolonged remission

3 Solitary toxic nodule / adenoma

About 5% of cases , prolonged remission is again rarely induced by drug therapy

4 De Quervians thyroiditis

It transient hyperthyroidism sometimes results from acute inflammation of the gland , as a result of viral infection

5 Post partum thyroiditis

Symptoms:

1. Irregular heart beat
2. Hand tremor
3. Fatigue
4. Sweating and heat intolerance
5. Goiter
6. Frequent bowel movement
7. weight loss

Hashimoto thyroiditis (Autoimmune disorder)

Is autoimmune disease of thyroid gland it is gradually destroyed , symptoms may be notice over time, (thyroid enlargement, painless goiter) and Some people eventually develop hypothyroidism, after many year thyroid typically shrink in size and develop hyperthyroidism

Symptoms:

1. Fatigue and sluggishness
2. Cold intolerance
3. Heavy menstrual flow or irregular period
4. Joint stiffness
5. Muscles ache, tenderness
6. Muscles weakness
7. May cause urticaria in 30% of patient
8. Slow heart rate (bradycardia)
9. Panic disorder

* To diagnosed case of hasimoto we approve (TSH , T4 , ANTITHYROID AUTOANTIBODIES)

Normal TSH levels?

Normal levels of TSH vary based on age, and it is include:

- Infants up to 5 days old: 0.7 – 15.2 (uIU/mL).
- Infants 6 to 90 days old: 0.72 – 11.0 uIU/mL.
- Babies 4 to 12 months old: 0.73 – 8.35 uIU/mL.
- Children 1 to 6 years old: 0.7 – 5.97 uIU/mL.
- Children 7 to 11 years old: 0.6 – 4.84 uIU/mL.
- People 12 to 20 years old: 0.51 – 4.3 uIU/mL.
- Adults 21 to 99 years old: 0.27 – 4.2 uIU/m
- *(uIU/mL) = micro-international units per milliliter

Thyroid Stimulating Hormone (TSH)

TSH - TEST Indication

*(for first time checkup we need more than 3 symptoms to approve TSH only, if abnormal result then we approve T3 and T4)

- In case of normal TSH and patient still symptomatic, approve T3 AND T4
- If the patient already diagnosed, we do TSH
- every 6 to 8 weeks for follow up after starting treatment to see treatment effectiveness
- During follow up approve (TSH ,T4)regarding to patient symptoms and diagnosis every 3 to 6 months
- In case of child with congenital disorder approve TSH as per DHA guideline for screening

*In case of Hashimoto thyroiditis, Refer to clinical picture

Thyroid Cancer

IN CASE OF THYROID CANCER, before thyroidectomy, Consider thyroglobulin measurement and anti-Tg antibodies 6–12 weeks post-op according to NCCN

GUIDLINE: Can be consider

TSH On Pregnancy

*In case of pregnant lady, we check TSH 3 times, on each trimester

Pregnancy causes changes in thyroid hormones. It's common for TSH to be slightly lower than normal during the first trimester, then slowly increase

- First trimester (9 to 12 weeks): 0.18 – 2.99 (uIU/mL).
- Second trimester : 0.11 – 3.98 uIU/mL.
- Third trimester: 0.48 – 4.71 uIU/mL


TSH During Chemotherapy of other organ

During chemotherapy we check tsh after 5 or 6 dose especially in some lung cancer like adenocarcinoma, according nccn guideline

*TSH also can approve in case of monoclonal antibodies

NCCN Guidelines For Thyroid Cancer

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NCCN Guidelines Version 3.2022
Thyroid Carcinoma – Papillary Carcinoma

[NCCN Guidelines Index](#)
[Table of Contents](#)
[Discussion](#)

TREATMENT	DISEASE MONITORING	FINDINGS	MANAGEMENT	
Lobectomy	<ul style="list-style-type: none"> • Physical examination • TSH • Neck ultrasound at 6–12 months 	<ul style="list-style-type: none"> Abnormal contralateral nodule or lymph node No evidence of disease 	<ul style="list-style-type: none"> Biopsy of suspicious areas (if lymph node, include Tg washings) Physical examination TSH (goal lower half normal) Neck ultrasound annually, and then every 3–5 years if stable See the NCCN Guidelines for Survivorship 	<ul style="list-style-type: none"> Clinical Presentation (PAP-2) Recurrent Disease (PAP-8) or Metastatic Disease (PAP-9)
Total thyroidectomy without RAI	<ul style="list-style-type: none"> • Physical examination • TSH • Tg measurement and antithyroglobulin antibodies (Tg ab) at 6–12 weeks • Neck ultrasound at 6–12 months 	<ul style="list-style-type: none"> Rising or new Tg ab Abnormal imaging and/or rising Tg No evidence of disease 	<ul style="list-style-type: none"> Consider additional imaging (CT neck/chest), PET, or RAI imaging Biopsy of suspicious areas on imaging (Tg washings) Physical examination TSH (goal lower half normal) Tg measurement and Tg ab yearly if stable Neck ultrasound annually, and then every 3–5 years if imaging and Tg/Tg ab stable See the NCCN Guidelines for Survivorship 	<ul style="list-style-type: none"> Recurrent Disease (PAP-8) Recurrent Disease (PAP-8) or Metastatic Disease (PAP-9)
Total thyroidectomy with RAI	<ul style="list-style-type: none"> • Physical examination • TSH • Tg measurement and Tg ab^y • Consider TSH-stimulated RAI whole body scan in high risk patients, patients with previous RAI avid metastases, or patients with abnormal Tg levels, stable or rising Tg ab or abnormal ultrasound 	<ul style="list-style-type: none"> Rising or new Tg ab Abnormal imaging and/or rising Tg No evidence of disease 	<ul style="list-style-type: none"> Consider additional imaging (CT neck/chest), PET, or RAI imaging Biopsy of suspicious areas on imaging (Tg washings) Physical examination TSH (<0.1 for 5 years) Neck ultrasound annually for 5 years, and then less often if imaging and Tg measurement and Tg ab if stable See the NCCN Guidelines for Survivorship 	<ul style="list-style-type: none"> Recurrent Disease (PAP-8) Recurrent Disease (PAP-8) or Metastatic Disease (PAP-9)

^y In selected patients who may be at higher risk for residual/recurrent disease (eg, N1 patients), obtain a stimulated Tg and consider concomitant diagnostic RAI imaging.

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

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Thyroid Stimulating Hormone (TSH)



References

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