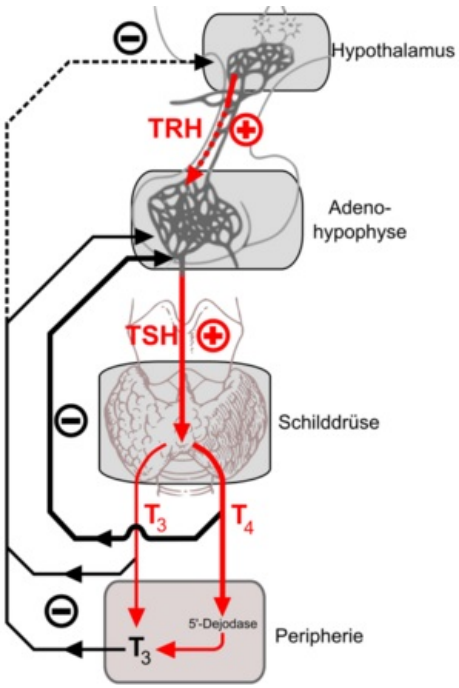
Examination for thyroid diseases

This article has been translated from WikiSkripta; ready for the **editor's review**.

Indicators of thyroid dysfunction

TSH in serum

- Its concentration is inversely proportional to the concentration of [[T_4]] ,
  - assuming normal function of the hypothalamic-pituitary axis reflects the level of T 4 ,
- Significantly increased: primary hypothyroidism,
- Sometimes produced modified - you can also find
- The **method of first choice** in case of suspected primary hypothyroidism or hyperthyroidism,
- Monitoring of T_4 substitution therapy ,
- Is investigated in hypercholesterolemia and hyperprolactinemia.



Thyroid hormone feedback

Function test with TRH

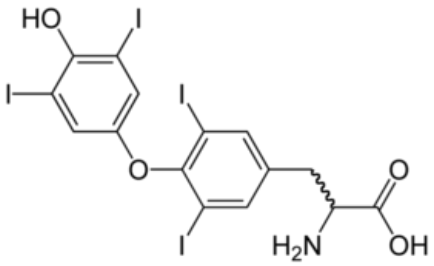
- Reflects TSH secretion
- in central hypothyroidism, in TSH-producing tumors.

Total thyroxine (TT4) and free (FT4) in serum

- Current secretion indicators
- FT4 indicates the availability of the hormone by tissues
- free thyroxin index – FTI

$$FTI = \frac{concentration\ T4 \cdot \%T3 - Uptake}{100}$$

- Prior to the treatment of hyperthyroidism, TSH secretion may still be suppressed in the long term.



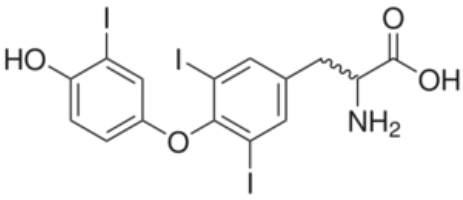
Thyroxine

Triiodothyronine total (TT3) and free (FT3) in serum

- High levels of T_3 autonomic hyperactivity of the gland
- Indications - examination of hyperthyroidism, severity of primary hypothyroidism, differential diagnosis of low TSH levels.

Reverse T_3 (RT3)

- Indirect indicator of T4 to T3 conversion,
- Examination of unknown causes of low TT3 or TT4.



Triiodothyronine

Serum Thyroglobulin (TG)

- Indicator of TG release from the active, inflammatory or tumor gland,
- Follow-up of patients after thyroidectomy for differentiated ca as a tumor marker - diagnosis of relapse (increasing TG).

α-subunit of hCG

- In general, it detects the formation of molecules with this subunit - even TSH.

Calcitonin, serum thyrocalcitonin

- Thyroid gland C-cell secretory activity indicator ,
- In the diagnosis of medullary tumors.

Disorders of thyroid hormone transport

Serum thyroxine binding globulin (TBG)

- Quantitatively the most important carrier,
- High values: genetically, in pregnancy, contraception,
- Low concentrations: malnutrition, malabsorption, hepatic synthesis disorders,
- We examine at T3 and T4 values that do not correlate with the clinical condition.

Prealbumin, transthyretin in serum

- The second most important carrier.

Binding capacity of transport proteins, T-uptake

- Significance and indications as for TBG, saturate the serum sample with a known concentration of T3 and determine the unbound fraction.

Indicators of autoimmune diseases of the thyroid gland

Thyroperoxidase Antibodies (Thyreoperoxidase Antibodies, TPOAb)

- Formerly described as antimicrosomal,
- Reveal the presence of an autoimmune process, the possible risk of dysfunction,
- Indications: goiter of unknown etiology, differential diagnosis of hyperthyroidism,
- Postpartum risk screening.

Anti-thyroglobulin antibodies

- They reveal the autoimmune process, they can explain incorrect results of TGB determination,
- Monitoring of differentiated thyroid carcinomas.

Antibodies to TSH receptors

- They can either stimulate or inhibit,
- Risk of developing Graves' disease, risk of endocrine ophthalmopathy,
- Differential diagnosis of hyperthyroidism.

Links

Related articles

- Thyroid gland
- Thyroid hormones
- Hyperthyroidism
- Hypothyroidism
- Examination of thyroid function
- Thyroid disease
- Radionuclide examinations of the thyroid gland
- Symptomatic mental disorders in endocrinopathies

References

- SCHNEIDERKA, Petr, et al. Chapters from clinical biochemistry. 2nd edition. Prague: Karolinum, 2004. ISBN 80-246-0678-X.

Source

ws:Vyšetření u chorob štítné žlázy