

AUTOIMMUNE THYROIDITIS

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SchilddrüsenLiga Deutschland e.V.

Umbrella organisation of self-help groups
for thyroid patients and their relatives Member
of the Thyroid Federation International (TFI)



Just a minute!

Sleep problems
Fits of rage
Depressions
Fatigue
Increase in weight
Nervousness

The thyroid gland

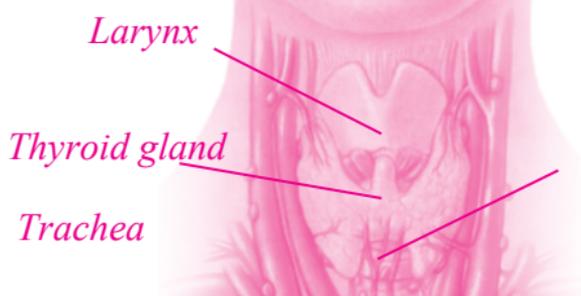
The thyroid is a small hormone gland many people are not aware of. It is located in front of the larynx and can normally not be felt. Although it is of paramount importance, it is not felt until it attracts attention by its rebellious behaviour.

Together with you, we will make sure that your thyroid remains peaceful.

The Schilddrüsen-Liga Deutschland e.V. has committed itself to bring thyroid experts and patients together around one table. The targets are the promotion of the knowledge about the diseases of the thyroid, its prevention, early detection and best possible treatment.

This also requires the cooperation of an **informed patient**.

In addition, the **Schilddrüsen-Liga Deutschland e.V. wishes to support** patients and their relatives in the foundation of self-help groups.



Autoimmune Thyreoiditis

The autoimmune thyroiditis is a thyroid disease characterised by a proliferation of inflammatory cells in the thyroid. The thyroid may grow by the accumulation of inflammatory cells. Then, the so-called Hashimoto thyroiditis, also called hypertrophic autoimmune thyroiditis, is spoken of in Germany. The atrophic autoimmune thyroiditis occurs significantly more frequently. The inflammation results in a destruction of the thyroid cells so that the thyroid gland becomes smaller and smaller and occasionally disappears completely after an extended progression.

At the beginning of the disease, a mild hyperthyroidism may exist in some cases. It is explained by the release of thyroid hormone from the vanishing thyroid tissue. During the further progression a hypothyroidism typically appears if there is no longer a sufficient number of cells which produce thyroid hormones.

The disease often extends over years unnoticed, in particular if there is no or only a mild hypothyroidism.

Causes:

The autoimmune thyroiditis is based on a misreaction of the immune system which is directed against the thyroid gland and may destroy it during its progress. The cause of this malfunction of the immune system has not been clarified in all details despite of extensive research. Due to an accumulation in families, a certain hereditary predisposition can be assumed.

. Individual genes which are of significance here are already known (as well). However, other factors whose significance cannot be safely estimated yet must come together for an outbreak of the disease. Since the autoimmune thyroiditis can be found more frequently in countries where the food contains a lot of iodine and tests with animals showed that an excess iodine can trigger an autoimmune thyroiditis, iodine is generally regarded as one of a lot of co-factors for the occurrence of autoimmune thyroiditis. Another factor which is discussed for the occurrence of autoimmune thyroiditis is a lack of the selenium trace element. Selenium is a ingredient of enzymes which are important for the thyroid hormone production. In addition, it is important for the proper function of the immune system. If selenium is taken in, the regular checks of the laboratory results should also include the test of the fT3 value since selenium influences the conversion from T4 to T3.

Other factors which are discussed as a possible cause of an autoimmune thyroiditis are viral infections, stress and disturbances in the female sexual hormone metabolism. It must (unfortunately) generally be stated that we do not sufficiently understand the actual cause of autoimmune thyroiditis today.

Symptoms:

The symptoms of the autoimmune thyroiditis are mainly caused by a disturbance of the thyroid function. At the beginning of the disease

a hyperthyroidism may occur (Hashimoto's toxicosis) which often has such a mild manifestation that it is not identified at all. Symptoms of hyperthyroidism are internal restlessness, nervousness, accelerated heartbeat, increased perspiration, weight loss, more frequent bowel movements and sleep disturbances (tremor?).

The autoimmune thyroiditis is much more frequently diagnosed if hypothyroidism exists. Hypothyroidism results in increased fatigue, feeling of coldness, increase in weight and possibly sluggish bowel movements as well as liquid intercalations in the tissue.

Autoimmune thyroiditis is (also) frequently diagnosed if thyroid values are examined within the scope of a routine withdrawal of blood and if there is a slight hypothyroidism a patient has not been aware of yet. The rarer form of the hypertrophic autoimmune thyroiditis (s.a.) in Germany can also entail complaints in the neck area caused by an enlargement of thyroid. A feeling of pressure in the neck area, swallowing difficulties and possibly dispnoea may exist then. A feeling of tightness in the neck area may occasionally be observed even with patients having an autoimmune thyroiditis without an enlargement of the thyroid gland. Whether or not this is really caused by an inflammation of the thyroid can unfortunately not always be stated in any case.

Diagnosics:

An autoimmune thyroiditis entails an increased migration of inflammatory cells

into the thyroid, making the thyroid tissue darker than normal thyroid tissue during an ultrasound examination. The determination of the thyroid auto-antibodies, in particular the TPO antibodies which can be identified in the blood of patients with an autoimmune thyroiditis, are of equal importance.

Furthermore, the determination of TSH and possibly of T3 and T4 as well is useful for an assessment of the thyroid function. Typically, the autoimmune thyroiditis includes a combination of a low-echo thyroid with an evidence of TPO antibodies and an elevated TSH value. If the TSH value is inconspicuous, it may be an early type of the autoimmune thyroiditis. Whether or when hypothyroidism may possibly occur can unfortunately not be predicted in such cases. If the TSH value is low, the thyroid scintigraphy may occasionally be required for a distinction from a Basedow's disease. A thyroid scintigraphy of the autoimmune thyroiditis would then show a lower accumulation, while an accumulation would increase in case of the Basedow's disease.

Therapy:

Since the cause of the inflammatory reaction in the thyroid has insufficiently been understood yet and no medications are available to us for a targeted treatment of the inflammatory reaction, the treatment of the autoimmune thyroiditis is limited to a compensation of the thyroid function.

This particularly applies to the most frequent form, the atrophic autoimmune thyroiditis. Since the thyroid gland cannot produce sufficient hormone, the body must receive thyroid hormone in form of a tablet. This tablet is taken in once in morning, with the required dose adapted to the particular patient. Normally, this is started with a relatively low thyroid hormone dose which is adjusted in dependence of the check-ups where a blood test is made in addition to a detailed query about the complaints.

The hypertrophic autoimmune thyroiditis which may result in an enlargement of the thyroid may require a thyroid operation in rare cases if there are complaints in the neck area.

In case of autoimmune diseases of the thyroid (Basedow's disease, Hashimoto thyroiditis), additional iodine doses should be avoided. Therefore, an intake of iodine-containing food supplements is not recommended either. Whether or not a low-iodine nutrition can additionally have a favourable influence on the autoimmune thyroid diseases has not been clarified yet.

Progress checks:

Patients with an autoimmune thyroiditis should regularly be subject to check-ups after the first diagnosis and on the initiation of a thyroid hormone therapy at shorter intervals comprising a few weeks up to some months. If the thyroid hormone adjustment showed the desired success, check-ups are normally appropriate at larger intervals,

e.g. every 1 to 2 years since the required thyroid hormone dose does normally not change over time. If, however, other medications are taken in or stopped additionally (e.g. oestrogen preparations or the pill) or there are crucial changes in the patient's lifestyle (e.g. increased sporting activity or a high increase in weight), a check of the thyroid hormone values should be made within a short term since an adjustment of the medication dose may be necessary within this scope.

The autoimmune thyroiditis may occasionally be associated with other autoimmune diseases so that they should be looked for in case of pertaining complaints during the progress check-ups, in particular if additional complaints occur. These other autoimmune diseases include

the autoimmune gastritis (type A gastritis or a pernicious anaemia), concomitant with a vitamin B₁₂ deficiency, diabetes mellitus, the autoimmune adrenocortical dysfunction and many others. A detailed discussion of these diseases would unfortunately go beyond the scope of this leaflet.

Further leaflets on the concomitant diseases are available from the Geschäftsstelle der Schild- drüsen-Liga Deutschland e.V. (Office of the Thyroid League Germany) on request.

Laboratory values

TSH:

Thyroid Stimulating Hormone. This hormone is produced in the pituitary gland and controls the thyroid function.

T3 or fT3:

Triiodothyronine is a highly efficacious thyroid hormone. Approx. 10% of the thyroid hormone is released in this form in healthy persons. T3 can be measured in the blood where the largest part of the hormone is bonded to the protein and serves as a hormone supply.

Also, the free hormone, i.e. the hormone not bonded to the protein, can be measured. Then, the laboratory findings often show fT3.

T4 or fT4:

Tetraiodothyronine, also called thyroxine. Approx.

90% of the thyroid hormone is released by the thyroid in this form. It is converted to the highly active T3 partially in the liver but also in other tissues where the thyroid hormone is needed.

TPO-AB and TG-AB:

Thyropoxidase antibodies and thyroglobulin antibodies. These antibodies are produced by the immune system and are directed against the thyroid protein thyropoxidase or thyroglobulin. If these antibodies can be detected in the blood, this may indicate an autoimmune disease of the thyroid.

TRAB:

TSH receptor antibodies. They are produced by the immune system, like TPO-AB and TG-AB. These antibodies are directed against the TSH receptor

and may activate or block it. TRABs can be detected in the blood of patients suffering from a Basedow thyroid disease.

Thyroglobulin:

This is a form of an accumulation of the thyroid hormone in the thyroid. This substance is produced by thyroid cells only. During the aftercare of patients suffering from a papillary or follicular thyroid carcinoma, this substance is measured in the blood for an early detection of a recurrence.

Calcitonin:

This is a hormone which is produced in a small number of thyroid cells which do not belong to the cells which actually produce the thyroid hormone. In case of a rare tumour form of the thyroid, the medullary thyroid carcinoma, this value is almost always elevated in the blood.

Thyroid sonography:

Ultrasound examination of the thyroid. This allows an exact measurement of the thyroid size, a judgement of the tissue structure as well as a detection and measurement of nodal changes and cysts.

Thyroid scintigraphy:

This process is used to venerationally inject a low-radioactive substance which accumulates in the thyroid. After approx. 20 minutes, the distribution of the substance in the thyroid can then be analysed. An accumulation is high where much iodine is absorbed, e.g. in the bones which produce the thyroid hormone (hot nodes). Nodes which do not show any accumulation are referred to as cold nodes.

Fine-needle puncture:

A very thin needle is inserted into the thyroid through the skin to obtain some cells for a microscopic examination. In most cases this examination is not more painful than a withdrawal of blood. In particular, cold nodes (see thyroid scintigraphy) should be punctured since they sometimes obscure thyroid carcinomas.



