



The Thyroid Wellness Newsletter

The Autoimmune Connection to Thyroid

The immune system usually protects the body from foreign matter, but in certain cases, the immune system will misinterpret the tissue in the body as foreign. This means that the immune system can attack organs in our body, including the thyroid gland. The attack of the immune system on the body is known as autoimmune disease. There are several autoimmune disorders that can occur in genetically predisposed people and as a result of the environment. The two most common autoimmune conditions affecting the thyroid are Graves' Disease and Hashimoto's Thyroiditis. Graves' Disease is a condition that causes the thyroid gland to work too much and to produce excessive amounts of thyroid hormones, T4 and T3, making the person hyperthyroid. Hashimoto's Thyroiditis is a condition that can make the thyroid gland not work efficiently resulting in hypothyroidism or underactive thyroid.

Recent research has shown evidence that if you have Graves' Disease or Hashimoto's Thyroiditis, then there is a higher chance of also having another autoimmune disease affecting other organs in the body, such as lupus, rheumatoid arthritis, type I diabetes, and celiac disease. Systemic Lupus Erythematosus is an autoimmune disease in which organs such as the heart, the joints, kidneys, and skin can be attacked causing arthritis, anemia, rashes, and renal damage. In addition, Rheumatoid Arthritis was shown to be the most common autoimmune disorder presenting with an autoimmune thyroid disorder. In lupus patients, the thyroid was more likely to present signs of inflammation with a thyroid ultrasound. Also, women who had lupus had a higher TSH level, indicating that lupus patients are more likely to be hypothyroid than people who don't have lupus. So if you have an autoimmune condition, including autoimmune thyroid disease, you need to watch for the occurrence of other autoimmune disorders.

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In autoimmune diseases like Rheumatoid Arthritis and Lupus, the body's immune system begins to attack normal cells.

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Mental Disorders Caused by Thyroid Disease

The thyroid gland produces two hormones to regulate metabolism in the body. Thyroxine, T4, is the main thyroid hormone produced by the gland. T3, or triiodothyronine, is only partially produced by the thyroid while the remainder of T3 comes from the conversion of T4 to T3 in the body. Levels of thyroid hormones affect the pituitary gland to produce more or less of TSH, the stimulating hormone of the thyroid to function properly. Thyroid hormones in turn regulate the functioning of cells in organs including the brain and are crucial for normal brain development. Thyroid hormones also regulate brain neurotransmitters. So, it would only make sense that the brain is highly influenced in its development and functioning by thyroid hormones throughout pregnancy and postnatal stages

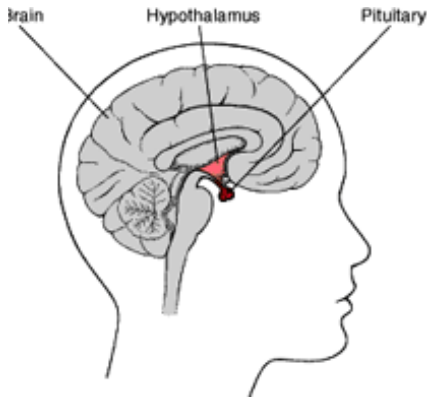
Research for instance has shown that iodine deficiency, maternal thyroid dysfunction, and neo-natal thyroid dysfunction cause cretinism. Cretinism is a form of hypothyroidism which impacts mental and physical growth, mental retardation, stunted growth, deafness, language deficits, spasms of the entire body, and unbalanced gait.



In adults, the effects aren't as severe. Yet, many patients with hyperthyroidism and hypothyroidism have symptoms related to effects on the brain. In hyperthyroidism, patients may experience anxiety and/or depression symptoms or can even have delirium in severe cases. In hypothyroidism, patients can experience diminished attention span and problems with motor function, drowsiness, and depression as well. These symptoms can be reversed with treatment of the thyroid imbalance. Research has even found a connection between autoimmune thyroid disease and anxiety or depression. There is also an increased risk of Alzheimer's Disease in women with hypothyroidism and subclinical hyperthyroidism. This shows clearly that the thyroid impacts brain function much more than previously thought.

Empty Sella and Hypothyroidism

When you have Hashimoto's Thyroiditis, an autoimmune thyroid condition that can cause hypothyroidism, you are also likely to have an autoimmune attack on the pituitary gland (the master gland that regulates many glands such as the adrenals, ovaries, testicles, and the thyroid gland itself). This immune attack on the pituitary is known as autoimmune hypophysitis. The inflammation of the pituitary gland over time causes the pituitary tissue to reduce in size and function.



The pituitary gland is a tiny gland located under the brain and connected to the hypothalamus which is part of the brain from which it receives signals via hypothalamic hormones (chemicals that regulate the functioning of the pituitary). Because the pituitary gland is so precious to our body and has major

regulation properties in our system, for its protection it sits in a bone socket at the base of the skull called the Sella Turcica. An autoimmune inflammation of the pituitary may result in a condition called empty sella, meaning that the bone socket in which the pituitary gland sits, appears empty or partially empty on an MRI of the pituitary gland. Inflammation of the pituitary gland and occurrence of empty sella may result in an impairment of the functioning of the pituitary gland. This can lead to adrenal insufficiency, disturbance of reproduction function, and menstrual abnormalities including absence of menstrual periods, infertility, and low testosterone in men. Growth hormone deficiency of the adult, which may have several consequences on your health, may also occur as a consequence of empty sella.

Recent research conducted at the Hospital General Universitario in Spain, has found that there is a connection between the presence of empty sella and autoimmune hypothyroidism. The research showed that approximately 1 out of 4 empty sella patients had autoimmune thyroid disease.

In essence, if you have Hashimoto's Thyroiditis or hypothyroidism related to an autoimmune thyroid disease, and you continue to have symptoms that may be related to a pituitary dysfunction despite appropriate treatment of the low thyroid, you may need to have your pituitary gland tested and evaluated.

Hypothyroidism and Pregnancy

The incidence of hypothyroidism during pregnancy ranges from 0.3% to 5% and the most common cause of hypothyroidism in pregnancy is Hashimoto's Thyroiditis. Recent studies have shown that pregnant women in general have an increased frequency of anti-thyroid antibodies that attack the thyroid in the second trimester. Thyroid antibodies are associated with a higher risk of infertility, miscarriage, pre-term birth, post-partum depression, and post-partum thyroiditis even when the thyroid function is perfectly normal.



There are many side effects from untreated hypothyroidism in pregnancy affecting both mother and baby. There is an increased risk of neuropsychological impairment in newborns as well as increased risk of pre-term birth, low birth weight, increased admission to the neo-natal intensive care unit, and increased morbidity and mortality of the baby. In the pregnant hypothyroid mother, untreated hypothyroidism can result in pregnancy induced hypertension, preeclampsia, abruption (separation of placenta from uterus), anemia, and post partum hemorrhage.

Levothyroxine has been the gold standard to treat hypothyroidism during pregnancy. Because of the increased distribution of thyroid hormones as a result of the pregnancy and because pregnant women produce higher amounts of the proteins that carry thyroid hormones in the bloodstream (primarily TBG or thyroid hormone binding globulin), women need as much as a 30 to 50% higher dosage of Levothyroxine than if they were not pregnant. Studies have reported that treatment with Levothyroxine significantly reduces pre-term birth by more than 70%. A trend of reduced reports of miscarriage was shown as well.

Research has also shown that supplementation of the trace mineral selenium during pregnancy and during the post-partum period can reduce the occurrence of hypothyroidism. Selenium has been shown to reduce post-partum thyroid dysfunction by nearly 40% and to significantly decrease the rate of moderate to advanced thyroiditis. However, studies are still being conducted to confirm the safety of use of higher amounts of selenium during pregnancy. So if you are about to become pregnant or are pregnant, you need to pay more attention to your thyroid.