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Hashimoto's Disease: The Underactive Thyroid Disease
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Introduction
The thyroid gland is part of the endocrine system and has a widespread function that controls the metabolism of multiple organ systems and processes. The main function of the thyroid gland is to produce thyroid hormones, which is a widespread function that helps to meet the metabolic demands of the body. In Hashimoto's thyroiditis (HT), the thyroid gland becomes inflamed and causes the thyroid gland to become underactive.

Pathophysiological Process and Significance
HT is caused by an autoimmune response caused by destruction of the thyroid gland. Loss of immune tolerance to the lack of regulation of thyroid hormone synthesis by the thyroid cells leads to the production of antibodies directed against thyroid tissue, which cause destruction of the thyroid gland. This destruction inhibits the release of thyroid hormones (T3 and T4), but has no effect on metabolic processes.

The disorder is associated with an activated inflammatory process when an individual is genetically predisposed, environmentally (sodium diet, toxins, viral infection) predisposed for HT. This inflammatory process is characterized by the accumulation of the human leukocyte antigens (HLA) class II on antigen-presenting cells (APCs) into the thyroid gland. HLA class II are proteins that are involved in antigen presentation. As a result, antigen-presenting cells such as dendritic cells and macrophages macrophages. HLA antigen-presenting cells are not present outside of the cell to T-lymphocytes. This stimulates the multiplication of T helper cells. T helper cells then stimulate B cells to produce antibodies to the antigen. When there is an accumulation of HLA Class II molecules thyroid, this causes damage to thyroid cells and causes the release of thyroid-specific proteins that are then released into the blood. This also activates the APC.

References Cited

Additional Sources

Signs and Symptoms
Since the thyroid gland regulates the entire metabolism, the thyroid gland indirectly affects every cell, tissue, and organ in the body—from muscles, bones, skin, and the digestive track, heart, and brain. Since the thyroid gland is a multisynaptic functioning gland, there are a wide variety of signs and symptoms that may be present with Hashimoto's disease and/or any form of hypothyroidism. Regardless of which type of hypothyroidism a person may possess, the possible signs and symptoms will be the same. Initially, hypothyroidism occurs in a rather mild manner (and without symptoms), but as the disease progresses, the symptoms become more apparent. Signs and symptoms that can be seen in someone with a hypothyroidism are as follows: cyanosis, fatigue, dry skin, increased sensitivity to cold, muscle weakness, cramps, or stiffness, coarse brittle thinning hair, brittle nails, hoarse voice, unexplained weight loss or gain, lethargy, depression, menstrual irregularities, heavy and excessive bleeding. Psychological examination of thyroid function also shows hyperesthesia (increased sensitivity to touch), diastolic hypertension, cognitive impairment, delayed sleep onset, problems, altered laboratory results and TSH, decreased T4 levels, normal or sometimes decreased Total or Free T3, high TSH, or circulating (in the systemic tissue). Hashimoto's disease's specific: Elevated serum concentration of TPO autoantibodies (Ross, 2015).

Nursing Implications
Since HT and hypothyroidism can present in a variety of ways and levels of severity, the most important factor is an accurate diagnosis. The first step in diagnosis begins with a thorough physical exam and obtaining a complete medical history. Taking time to interview the patient and truly hear what he or she is saying is crucial. In addition, focusing on one symptom will provide the healthcare provider with a diagnosis consistent with HT. The healthcare provider needs to be well educated about hypothyroidism and its presenting symptoms as the healthcare provider will have helped patients in making mistakes for other medical problems due to the thyroid gland being a multisystem gland and the symptoms are non-specific. It is important for healthcare providers to be well educated about this disease. When the physical exam is complete and hypothyroidism or HT is suspected, diagnostic lab work must be obtained to confirm the diagnosis. Lab work usually begins with a TSH test following the ISH clinical practice guidelines. In addition, a T4 level should be obtained and will be lower than normal. One should test T4 levels in persons with HT who will eventually develop hypothyroidism due to the destruction of the thyroid gland, the T3 and T4 may remain normal since hypothyroidism has not occurred at this time. For a definitive diagnosis, TSH and FT4 levels must be test positive for serum antithyroid antibodies. This test confirms the presence of autoantibodies that mistakenly attack the thyroid tissue. A computerized tomography (CT) scan may also be performed to assess the thyroid gland for size, texture, nodules, and/or inflammation (NIS, 2013).

Treatment for HT depends upon goiter activity and/or if hypothyroidism is present. If a person with HT does not have hypothyroidism and/or a goiter, continued monitoring should be done. If a person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place. A person with HT has a goiter but is still free of hypothyroidism and/or a goiter, continued monitoring should take place.