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Perspective

Organic-specific autoimmune diseases

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INTRODUCTION

Some autoimmune diseases are considered organ specific, means the immune system particularly targets the particular organs or tissues. Organ-specific autoimmune diseases include celiac disease, Graves' disease, Hashimoto thyroiditis, type I diabetes, and Addison disease.

CELIAC DISEASE

Celiac disease is largely a disease of the small intestine; along with small intestine other organs may be affected. People in the age of 30s and 40s, and children are mostly affected, but celiac disease can begin at any age. It results from a response to proteins, commonly called gluten, found mainly in wheat, barley, rye, and a few other grains. The disease has several genetic causes. On exposure to gluten, the body produces different autoantibodies and an inflammatory response. The inflammatory response in the small intestine leads to decrease in the depth of the microvilli of the mucosa, which hinders absorption and can lead to weight loss and anemia. Sometimes it is also characterized by diarrhea and abdominal pain, symptoms that are frequently misdiagnosed as irritable bowel syndrome.

Diagnosis of celiac disease is completed by performing serological tests for the presence of primarily IgA antibodies to components of gluten, the transglutinaminase enzyme, and autoantibodies to endomysium, a connective tissue surrounding muscle fibers. Serological tests are frequently followed up with endoscopy and biopsy of the duodenal mucosa. Serological screening records have found that, about 1% of individuals in the United Kingdom are positive even though they don't show any symptoms. Performing the serological screening allows for more careful checking and prevention of severe disease.

By complete removal of gluten containing foods from the diet, can results in reduced risk of complications

Other theoretical approaches include breeding grains that don't contain the immunologically reactive components or developing dietary supplements that contain enzymes that break down the protein components that cause the immune response.

DISORDERS OF THE THYROID

Graves' disease is that the commonest explanation for hyperthyroidism in the United States. Symptoms of Graves' disease result from the assembly of Thyroid-Stimulating Immunoglobulin (TSI) also called TSH-receptor antibody. TSI targets and binds to the receptor for Thyroid Stimulating Hormone (TSH), which is of course produced by the pituitary. TSI may cause conflicting symptoms because it's going to stimulate the thyroid to form an excessive amount of thyroid hormone or block thyroid hormone production entirely, making diagnosis harder. Signs and symptoms of Graves' disease include heat intolerance, rapid and irregular heartbeat, weight loss, goiter (a swollen thyroid, protruding under the skin of the throat and exophthalmia, bulging eyes) often referred to as Graves's ophthalmopathy. The most common reason for hypothyroidism in the United States is Hashimoto thyroiditis, also called chronic lymphocytic thyroiditis. Patients with Hashimoto thyroiditis often develop a spectrum of various diseases because they're more likely to develop additional autoimmune diseases like Addison disease, type 1 diabetes, rheumatoid arthritis, and celiac disease. Hashimoto thyroiditis is a TH1 cell-mediated disease that happens when the thyroid is attacked by cytotoxic lymphocytes, macrophages, and autoantibodies. This autoimmune response leads to numerous symptoms that include goiter, cold intolerance, muscle weakness, painful and stiff joints, depression, and amnesia.

TYPE 1 DIABETES

Juvenile diabetes, or type 1 diabetes mellitus, is generally analyzed in children and young adults. It is a T-cell dependent autoimmune disease characterized by the particular destruction

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of the β cells of the islets of Langerhans within the pancreas by CD4 TH1-mediated CD8 T cells, anti-β-cell antibodies, and macrophage activity. There is also proof that viral infections can have either potentiating or inhibitory role within the development of hyperglycemia. The destruction of the β cells causes a scarcity of insulin production by the pancreas. In T1D, β-cell destruction may occur over several years, but symptoms of hyperglycemia, extreme increase in thirst and urination, weight loss, and extreme fatigue usually have a sudden onset, and diagnosis usually doesn't occur until most β cells have already been destroyed.