

Hypothyroidism is a dysfunction of thyroid gland in which hormones of the gland, triiodothyronine T3 and thyroxine T4 are not produced in sufficient levels. This problem affects metabolic processes in the body by slowing them down. Risk factors for hypothyroidism are older age because of glandular tissue atrophy, female gender, family history, some medications, radioactive iodine after the treatment of Grave's disease. Autoimmune process in the thyroid gland like Hashimoto's thyroiditis also causes hypofunction. Clinical presentation includes hypercholesterolemia due to slow liver function. Anemia occurs due to decreased hematopoiesis. Due to decreased kidney function, toxins and medications are retained in the body, causing toxicity. Other problems are increased body weight, delayed reflexes, feeling cold, constipation, lethargy, sluggishness, fatigue, peripheral edema. Diagnosis is based on the blood levels of hormones TSH , T3 and T4. Also, autoantibodies against the gland are looked for. Treatment is hormonal with levothyroxine.

Hyperthyroidism is an increased secretion of thyroid hormones which causes increased body metabolism. The most common cause for this disease is an autoimmune process which stimulates thyroid gland, and is called Grave's disease. Other causes are different nonimmune inflammatory processes in the thyroid, tumors like toxic adenomas, cancers. Clinical presentation includes nervousness, sensitivity to heat, weight loss, insomnia, enlarged gland, exophthalmos, myxedema (occurs in hypo and hyperthyroidism). In Graves disease there is increased sensitivity to sympathetic system which leads to arrhythmias and heart failure. Diagnosis involves thyroid hormone levels, autoantibody tests and ultrasound. Treatment includes antithyroid medications like propylthiouracil, methimazole, or radioactive iodine application and surgical ablation of the gland.

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