

HYPER- AND HYPO- THYROIDISM

An Overview

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IMPORTANT

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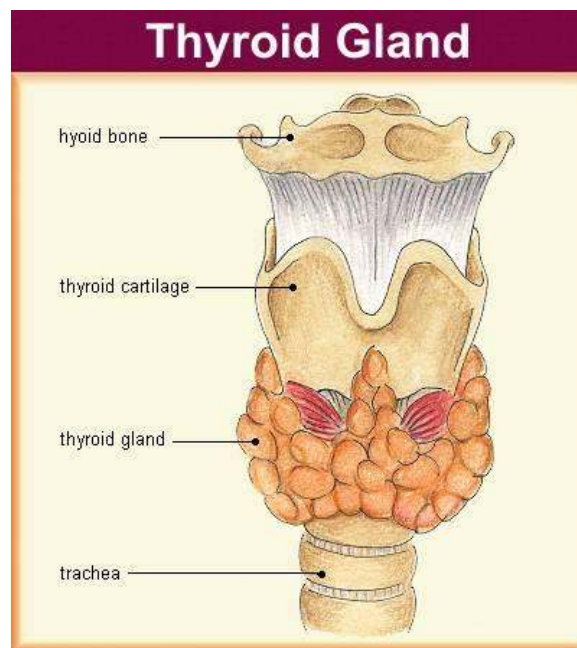
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Introduction

Hyperthyroidism (Graves' Disease, Thyrotoxicosis, Toxic Diffuse Goiter, Toxic Nodular Goiter, Plummer's Disease, Basedow's Disease) is a syndrome initiated by excessive production of thyroid hormones that results in multiple-system abnormalities ranging from mild to severe.

Causes and Incidence

The cause of hyperthyroidism is unclear, but it is thought to be autoimmune in origin with a genetic component. The most common type of hyperthyroidism is Graves' disease, which occurs about eight times more often in women than men and is seen in about 2% of the female population.



Disease Process

Thyroid hormones are generally stimulatory, and excess production of these hormones produces a state of hypermetabolism in which the functions of various organ and tissue systems are increased. This is manifested by increased activity of the neuromuscular and sympathetic nervous systems.

(Picture right - Goiter (Graves' Disease))

Compensatory mechanisms are called into play, and cardiac output, peripheral blood flow, body temperature, and respiratory rate increase. Other effects include increased cellular use of glucose and hyperinsulinemia, decreased supply of fats and carbohydrates, increased vitamin metabolism, increased bone mobilization and hypercalcemia, and increased secretion of adrenocorticotropic hormone and melanocyte-stimulating hormone. The organ systems eventually have trouble coping with the increased demand, and failure can result.

Symptoms

The most common signs are goiter; warm, moist skin; erythema; sweating; tremor; weakness; restlessness; insomnia; emotional lability; increased food intake; lid lag; lid retraction; proptosis; tearing; and a startled look.

(Picture right - ophthalmic manifestations of Hyperthyroidism (Graves' disease) - Proptosis, lid retraction, strabismus, and optic nerve compression)



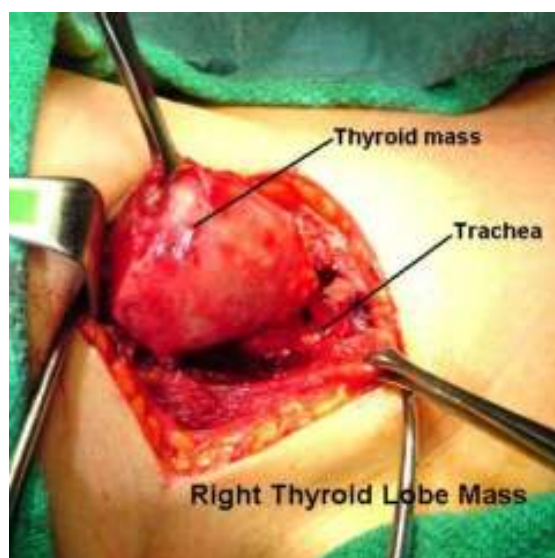
Potential Complications

Cardiac insufficiency, generalized muscle wasting, corneal ulcers, decreased libido, osteoporosis, myasthenia gravis, and impaired fertility are among the complications. The elderly are the most likely to exhibit these complications. Thyroid storm is a severe, dramatic form of hyperthyroidism with an abrupt onset and rapid progression. It is a life-threatening emergency requiring immediate treatment to prevent shock, coma, cardiovascular collapse, and death.

(Picture right - Thyroid Mass (Thyroidectomy))

Diagnostic Tests

Diagnosis depends on the clinical history and examination coupled with a serum triiodothyronine and thyroxine assay and thyroid hormone binding ratio. All of the laboratory test results are elevated in hyperthyroidism.



Treatments

Surgery - Thyroidectomy in individuals who cannot receive radioactive iodine, have large goiters, or have toxic adenoma

Drugs - Radioactive iodine to destroy thyroid tissue (treatment of choice); thiamides to inhibit hormone synthesis; beta-adrenergic blockers to diminish clinical manifestations; iodines to reduce the size of the thyroid before surgery; corticosteroids for palliation in Graves' disease

General - Monitoring for signs of hypothyroidism; planned rest and exercise cycles; long-term follow-up; counseling for liability; instruction about medications.

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Hypothyroidism

Hypothyroidism (Myxedema) is a clinical state resulting from a deficiency of thyroid hormones.

(Picture Right - Thyroid Gland)

Causes and Incidence

The cause of some hypothyroidism is unknown but is thought to be autoimmune in origin. Other hypothyroidism is caused by destruction of thyroid or pituitary tissue by underlying disease, surgery, or radiation treatment.



Hypothyroidism is a common disorder that affects all age groups. Women between 30 and 60 years of age are most often affected. It also occurs in approximately 1 of every 4,500 live births. The incidence is rising in the elderly population.

(Picture right - hypothyroidism (note the swelling around the eyes))

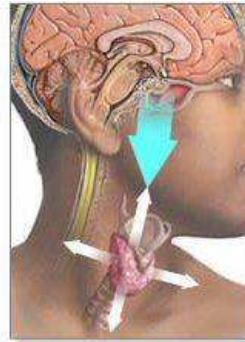
Disease Process

When the supply of thyroid hormone is inadequate, a general depression of most cellular enzyme systems and oxidative processes results, reducing the metabolic activity of the cells. This in turn reduces oxygen consumption, decreases energy production, and lessens body heat. Tissues are infiltrated by mucopolysaccharides, carotene is deposited in epidermal layers, adrenergic stimulation is decreased, protein effusion collects in the pericardial and pleural sacs, and proteinaceous ground substances are deposited in tissues.

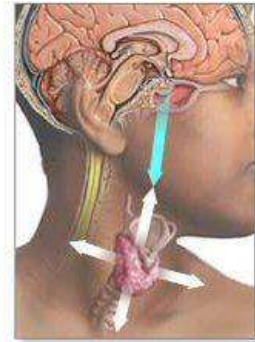


Symptoms

Signs and symptoms are often insidious in onset. They include fatigue and lethargy; mild weight gain; cold, pale, dry, rough hands and feet; reduced attention span with memory impairment, slowed speech, and loss of initiative; swelling in extremities and around the eyes, eyelids, and face; menstrual irregularities; muscle aches and weakness; joint aches and stiffness; clumsiness; hyper-stiff reflexes; decreased pulse; decreased blood pressure; agitation; depression; and paranoia.



Primary hypothyroidism: thyroid can't produce amount of hormones pituitary calls for



Secondary hypothyroidism: thyroid isn't being stimulated by pituitary to produce hormones

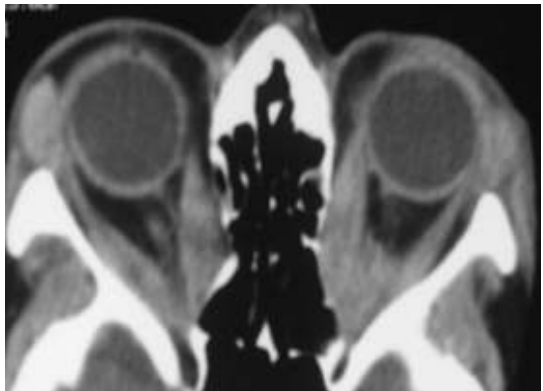
Potential Complications

Myxedema coma is a life-threatening complication of hypothyroidism that requires immediate treatment. Other complications include ischemic heart disease, congestive failure, pleural and pericardial effusion, deafness, psychosis, and anemia.

Diagnostic Tests

Serum and serum-free triiodothyronine and thyroxine are decreased; serum thyroid-stimulating hormone is increased in primary hypothyroidism and decreased in secondary hypothyroidism.

(Pictures below - Hypothyroidism Scans)



Treatments

Surgery - None

Drugs - Oral replacement thyroid hormone; IV form is used for myxedemic coma

General - Lifelong monitoring; instruction about lifelong thyroid hormone replacement therapy and the importance of consistent and timely use

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Alternative Treatment for Hyper- or Hypo-

It is believed that the following recommendations can positively influence the thyroid gland:

Natural hi-fibre, whole food diet (low fat, low salt (sodium), low sugar, low/no alcohol)

Supplements:

Kelp - as per manufacturer's directions

Multi-Vitamin with chelated minerals - high potency - 1 tab/cap, 2 x daily

Add the following Additional Supplementation:

Vit C - 1,000 mg, time-release, 2 x daily

Vit B-complex - 100 mg, 1 x daily

Vit E - 400 iu, 2 x daily

Zinc - 15-30 mg, 1 x daily

Selenium - 25 to 100 mcg, 1 x daily

Omega 3 (Fish liver oil) - 1,000 mg, 1 x daily

Omega 6 (Oil of Evening Primrose or Starflower Oil) - 1,000 mg, 1 x daily

Activated Charcoal - 260 mg, 2 x caps/tabs after each meal; Alternatively: 1 x caps/tabs, with a glass of water, 6 x daily between meals

Consider:

Acidophilus (Caps or Powder) - Max as per manufacturer's recommendations

Pollen - Max as per manufacturer's recommendations

Propolis - Max as per manufacturer's recommendations

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Relaxation and Hypnosis Techniques

It is believed that relaxation, autosuggestion, and hypnosis with positive visualisation can help to augment the body's natural healing process. Visit <http://campbellmgold.com> for possible programs.

Lavender Aromatherapy Oil

Put 2 x drops of Lavender Aromatherapy Oil on a tissue, and place it where it can be comfortably inhaled during relaxation and visualisation sessions.

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