Thyroid Physiology, Pharmacology, & Pharmacotherapy

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Thyroidotoxicosis / "Thyroid Storm" Therapy

- Early therapy: The goal is to administer L-thyroxine, hydrocortisone, and calcium gluconate (or magnesium) to treat the symptoms of hyperthyroidism.
- Late therapy: A combination of antithyroid medications (e.g., methimazole, propylthiouracil) with iodine restriction and radioactive iodine therapy may be necessary.
- Surgery: Surgical treatment may be considered in cases of thyrotoxicosis with severe symptoms, such as stridor, dyspnea, or severe cardiac arrhythmias.

Thyroidectomy

- Surgery is indicated for patients with severe thyrotoxicosis that is refractory to medical treatment.
- Indications: Severe thyrotoxicosis, thyrotoxic crisis, and thyrotoxic ophthalmopathy.
- Surgical procedures: Total thyroidectomy is the gold standard for treatment.

AACE/ATA 2012 Guidelines: Total thyroidectomy (TT) or hemithyroidectomy (HT) with neck dissection is recommended for patients with severe thyrotoxicosis.

Management of Primary Hypothyroidism

- The goal of treatment is to achieve and maintain euthyroidism.
- Initial treatment: The initial dose of levothyroxine is usually 100-200 μg/day, with subsequent adjustments based on symptoms and laboratory results.
- Monitoring: Monitoring should include monitoring of thyroid-stimulating hormone (TSH) levels every 1-3 months.

Subclinical Hypothyroidism

- Subclinical hypothyroidism refers to an elevated TSH level with normal T4 levels.
- Management: Monitoring is usually recommended, but treatment is controversial.

Thyroiditis

- Causes: Infectious, autoimmune, and postpartum.
- Management: Treatment varies depending on the cause.

Thyroiditis: Riedel's Thyroiditis

- Riedel's thyroiditis is a rare, fibrous inflammatory disease of the thyroid gland.
- Treatment: Surgery may be required in the case of severe fibrosis and obstruction.

Thyroid Cancer

- Thyroid cancer is a malignant tumor of the thyroid gland.
- Risk factors: Family history of thyroid cancer, exposure to radiation, and iodine deficiency.
- Treatment: Treatment depends on the type and stage of the cancer.

Thyroid Hormone Replacement Therapy

- The goal of replacement therapy is to achieve and maintain euthyroidism.
- Initial dose: The initial dose of levothyroxine is usually 25-50 μg/day, with subsequent adjustments based on symptoms and laboratory results.
- Monitoring: Monitoring should include monitoring of TSH levels every 1-3 months.

Thyroiditis: Thyrotoxicosis

- Thyrotoxicosis refers to an increased production of thyroid hormones.
- Management: Treatment varies depending on the cause.

Thyroiditis: Hypothyroidism

- Hypothyroidism refers to an underactive thyroid gland.
- Management: Treatment with levothyroxine is necessary to achieve and maintain euthyroidism.

Thyroiditis: Thyroid Nodules

- Thyroid nodules are common and can be benign or malignant.
- Management: Treatment depends on the size, number, and characteristics of the nodules.

Thyroiditis: Thyroid Carcinoma

- Thyroid carcinoma is a malignant tumor of the thyroid gland.
- Risk factors: Family history of thyroid cancer, exposure to radiation, and iodine deficiency.
- Treatment: Treatment varies depending on the type and stage of the cancer.

Thyroiditis: Thyroiditis (Rheumatic)

- Rheumatic thyroiditis is a condition that affects the thyroid gland in rheumatic diseases.
- Management: Treatment is usually directed at the underlying rheumatic disease.

Thyroiditis: Thyroiditis (Sarcoidosis)

- Sarcoidosis is a multisystem inflammatory disorder of unknown cause.
- Management: Treatment is usually directed at the underlying sarcoidosis.

Thyroiditis: Thyroiditis (Sjogren's Syndrome)

- Sjogren's syndrome is a chronic inflammatory disorder that affects the exocrine glands.
- Management: Treatment is usually directed at the underlying Sjogren's syndrome.

Thyroiditis: Thyroiditis (Thyroiditis of Pregnancy)

- Thyroiditis of pregnancy is a condition that affects the thyroid gland during pregnancy.
- Management: Treatment is usually directed at the underlying pregnancy.

Thyroiditis: Thyroiditis (Transient)

- Transient thyroiditis is a condition that affects the thyroid gland for a short period of time.
- Management: Treatment is usually directed at the underlying transient thyroiditis.

Thyroiditis: Thyroiditis (Thyroiditis of Autoimmune)