Hyperthyroidism Interventions

The focus of care for patients with hyperthyroidism is to block the adverse effects of too much thyroid hormone, suppress oversecretion of thyroid hormone, and prevent complications. Treatment may include antithyroid medications, radioactive iodine therapy, and surgical intervention.



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Drug Therapy

Propylthiouracil (PTU)
Propeller-Thigh-U
Propylthiouracil (PTU) is an antithyroid drug that works by inhibiting the synthesis of thyroid hormones. PTU is typically used for patients in their first trimester of pregnancy, those who have had an adverse reaction to methimazole, or need a rapid reduction in symptoms as it achieves the therapeutic goal more quickly. This drug is taken 3 times per day.

Methimazole (Tapazole)
Moth-missile
Methimazole is another antithyroid drug similar to PTU, but it is given in a single daily dose. Because PTU is linked to causing more cases of liver damage, Methimazole is usually taken unless a patient cannot tolerate it. Symptoms can begin improving in 1-2 weeks with good results seen within 4-8 weeks, but therapy is typically continued for 6-15 months.

Iodine
Iodine-bottle
Iodine given in large doses rapidly inhibits synthesis of T3 and T4 and blocks their release into the circulatory system. It can also decrease the vascularity of the thyroid gland; therefore, it is often given in preparation for a thyroidectomy. Results can be seen within 1-2 weeks; however, because of a reduction in the therapeutic effect, long-term use is not effective in managing hyperthyroidism. It is available in Lugol’s solution and in the form of saturated solution of potassium iodide (SSKI).

Beta Blockers
Beta-fish with Blocks
Beta blockers provide symptomatic relief of thyrotoxicosis as these drugs block the effects of sympathetic nervous stimulation. This can aid to decrease tachycardia, hypertension, nervousness, irritability, and tremors. Propranolol is often prescribed with other antithyroid agents, while Atenolol is the preferred drug for use in patients with asthma or heart disease.

Other Therapies

Radioiodine Ablation
Radioactive-guy with Iodine Baster
Taken by mouth, radioactive iodine is absorbed by the thyroid gland, causing the gland to shrink and eventually destroying it, thereby reducing thyroid hormone secretion and causing symptoms to subside, usually within 3-6 months. However, because this therapy causes the thyroid activity to slow considerably, there is a high incidence of posttreatment hypothyroidism resulting in the patient needing to take lifelong thyroid hormone therapy. Educate the patient about the symptoms of hypothyroidism and when to seek medical help.

Thyroidectomy
Thyroid removed by Scalpel
When an individual is not a candidate for RAI, they may undergo a thyroidectomy, which is surgical removal of the thyroid gland. This procedure is usually indicated for individuals who have been unresponsive to antithyroid therapy, have a large goiter causing tracheal compression, or have thyroid cancer.

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Lifelong thyroid hormone replacement will be necessary and the patient should be educated on the importance of adhering to the drug regimen, as well as having their TSH and T3/T4 levels checked.

Complications

Thyrotoxicosis

Thigh with Toxic-green-glow

Thyrotoxicosis is an acute, severe state of hyperthyroidism that results from excess amounts of thyroid hormones being released into the circulation (endogenously or exogenously). Those undergoing a thyroidectomy are especially prone to thyrotoxicosis as manipulation of the hyperactive thyroid gland results in an increase in hormones being released. Symptoms are the same of those manifested for hyperthyroidism but are more prominent and severe.

Post-Surgery Hypocalcemia

Post-Surgeon Hippo-cow

It is possible that during a thyroidectomy, damage to or inadvertent removal of the parathyroid gland(s) can occur. This can cause hypocalcemia to occur as calcium is regulated by the parathyroid.

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