Graves' Disease Labs and Treatment

Graves' disease is an autoimmune disease of the thyroid, which leads to hyperthyroidism. Classic findings include pretibial myxedema and exophthalmos. Patients display hyperthyroid symptoms (goiter, heat intolerance, weight loss, insomnia, hyperactivity and palpitations) due to IgG antibodies which activate TSH receptors, leading to release of thyroid hormones. Typical lab values in patients with Graves' disease include decreased TSH, increased thyroid hormones (T3, T4), and increased radioactive iodine uptake when tested. Treatment includes beta blockers for immediate symptomatic relief, with methimazole, or eventually radioiodine ablation to prevent excess thyroid hormone production.



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Labs

Decreased TSH
Down-arrow Tissue
Lab values show decreased TSH in Graves' disease. This occurs due to negative feedback from high levels of thyroid hormones T3 and T4.

Increased T3
Up-arrow Teapot (3) Tree
Anti-TSH IgG antibodies bind to TSH receptors, stimulating them to release thyroid hormones. It is via this mechanism that patients with Graves' disease show elevated T3 levels.

Increased T4
Up-arrow Teapot (4) Fork
Anti-TSH IgG antibodies bind to TSH receptors, stimulating them to release thyroid hormones. It is via this mechanism that patients with Graves' disease show elevated T4 levels.

Radioactive Iodine Uptake (RAIU)
Radioactive-guy with Iodine Uptake-tube
In the radioactive iodine uptake test, which is a scan often used in the diagnosis of thyroid problems, patients with Graves' disease show high uptake.

Treatment

Beta blocker
Beta-fish with Blocks
Beta blockers are important in treating Graves' disease, as they provide rapid relief (within minutes) of symptoms such as palpitations, tremors, anxiety, heat intolerance and arrhythmias. These medications provide symptomatic treatment before thyroid hormone levels decrease.

Methimazole
Moth-missile
This drug is helpful in treating Graves' and hyperthyroidism, as it blocks oxidation of iodine in the thyroid gland, helping to decrease thyroid hormone levels.

Radioiodine Ablation
Radioactive-guy with Iodine Baster
This is a type of radiation therapy where radioactive iodine is administered to patients. This iodine is taken into the patient's thyroid where it ablates, or destroys, thyroid tissue. Patients receiving this therapy will need to supplement thyroid hormones, as their thyroid will no longer make sufficient thyroid hormones.

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