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Understanding Graves' disease

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Graves' disease is a condition of the immune system that leads to an overactive thyroid. It is caused by antibodies attacking the thyroid by mistake. The thyroid and the hormones it produces are the gas pedal for the body. When someone produces too much thyroid hormones, the

body goes into overdrive. Your pulse increases, you overheat, you lose sleep — these symptoms make people feel so unwell that they seek medical attention. This is what leads to additional testing and the diagnosis of Graves' disease.

In overdrive, muscle strength is lost, and the heart beats faster, adding extra wear and tear. Much like a car running at a high RPM (revolutions per minute) for an extensive period of time, that's not good for the engine. The goal is to treat this overactive phase when treating Graves' disease.

The main complication of Graves' disease is thyroid eye disease. Inflammation and bulging of the eyes occur in a third of people diagnosed with Graves' disease. Managing thyroid eye disease requires an endocrinologist to address the thyroid and ophthalmologists who deal with eye changes. Ear, nose and throat (ENT) specialists are occasionally involved in surgeries related to the eye disease as well.

All these specialists operate together in a Thyroid Eye Disease Clinic at Mayo Clinic. The morning is dedicated to the patient moving between the different specialties and performing a set of specific tests. At noon, the specialists meet to discuss patient impressions, review the test results and create a care plan.

The patient is seen again in the early afternoon, and the care plan is discussed. This includes suggestions on medication or surgery and clinical trials suited for that patient, dwelling in detail on the route the patient is interested in and contrasting it with the other choices.

The benefit of this system is that a patient can get all this analysis done in one day, resulting in increased patient satisfaction. Also, the number of clinical trials is increasing, with more available choices forecasted for patients in the near future.

Research and innovation surrounding Graves' disease is another area of focus for the future. The ability to create molecules that hit a specific target has increased tremendously over the last few years. This is particularly effective when the mechanism of a disease is known and what the target should be.

With thyroid eye disease, the main complication of Graves' disease, experts know the receptor they aim to block. There have been a number of clinical trials that aim to block that receptor, improve the eye disease and, for some of these drugs, also treat Graves' disease at the same time.

Targeting some of these areas has resulted in noticeable improvement in eye disease in the past several years. Furthermore, there are molecules in development that, in the next few years, will likely show ability to prevent the eye disease or reverse some of these changes that have already occurred.

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