

Modulating gut microbiota in a mouse model of Graves' orbitopathy

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Video Byte

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Abstract

Graves' disease (GD) is an autoimmune condition in which autoantibodies to a thyroid receptor cause hyperthyroidism. In addition to thyroid disease, many GD patients also develop Graves' orbitopathy (GO) – an eye disease causing double vision, protrusion of the eyeballs, and even blindness. Understanding the factors contributing to GO will help to develop improved treatments for this disease. A recent study focused on the effects of a unique factor – gut microbiota. Following up on results indicating that gut microbe variations correlated with thyroid disease severity, researchers used a mouse model of GD/GO to determine whether the gut microbiota plays a role in thyroid autoimmunity. Comparing female mice treated with antibiotics, probiotics, or fecal transplants from patients with severe GO, they found that treating mice with antibiotics reduced gut microbiota richness and decreased the severity of GD/GO. Mice receiving fecal transplants from patients with severe disease experienced worsened GD and GO severity, and probiotic treatment exacerbated the autoimmune conditions. Although further clinical studies are needed, the results support a role for the gut microbiota in thyroid disease and suggest that modulating gut microbes may potentially be used for novel treatments for GD and GO.