

## Researchers find new way to attack inflammation in Graves' eye disease

November 6 2009

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A small group of patients with severe Graves' eye disease experienced rapid improvement of their symptoms — and improved vision — following treatment with the drug rituximab. Inflammation around their eyes and damage to the optic nerve were significantly reduced. The same patients had not previously responded to steroids, a common treatment for Graves' eye disease.

Raymond S. Douglas, M.D., Ph.D., an oculo-plastics specialist who recently joined the faculty of the U-M Kellogg Eye Center, reports on the potential of the drug in the online October issue of *Ophthalmology*. Douglas reviewed the progress of six patients he treated while on the faculty of the University of California at Los Angeles.

Graves' [eye disease](#) is an autoimmune disease that causes inflammation and fatty deposits in the eye muscles and connective tissue surrounding the eye. Among the symptoms are pronounced bulging eyes, retracted eyelids, dry eyes, and, in severe cases, loss of vision. Women are more likely than men to develop the disease.

The study suggests that rituximab is a potentially effective new treatment for the most severe forms of Graves' eye disease. "These patients had already received the maximum level of steroid treatment," says Douglas. "Treatment with rituximab calmed inflammation, stopped progression of the disease, and saved the patients from having to undergo surgery."

Rituximab has been used to treat patients with other autoimmune

diseases, including [rheumatoid arthritis](#) and in non-Hodgkin's [B-cell lymphoma](#). The drug works by depleting B cells—the body's normal antibody-producing cells—that appear to go awry in [autoimmune diseases](#).

Collaborating with Terry J. Smith, M.D., the Frederick G.L. Huetwell Professor of Ophthalmology and Visual Sciences, Douglas has helped to explain the process by which the immune system attacks the orbital tissue in Graves' eye disease. In an earlier study, the researchers reported that [B cells](#) play a pivotal role in the inflammatory process in Graves' eye disease.

In the current study, Douglas observed improvement among the patients, four of whom were women, as early as four weeks following the first infusion of rituximab. Researchers also observed that the positive results were sustained 4 to 6 months after treatment.

"Treatment of the inflammatory component of Graves' eye disease has not advanced appreciably over several decades," says Douglas. High-dose steroids, sometimes in combination with orbital radiation, are still the first line treatment. But, says Douglas, "These are imperfect options because inflammation often recurs when the treatment ends." He is hopeful that rituximab can offer sustained improvement.

Douglas observes that the results from a small case series must be viewed with some caution. But given the substantial benefits for patients treated with rituximab, he sees good reason to proceed with a large-scale clinical trial to test this promising new drug.

[More information:](#) Rituximab treatment of patients with severe, corticosteroid-resistant thyroid-associated ophthalmopathy, *Ophthalmology*. The paper will appear in the January print edition. [DOI: 10.1016/j.ophtha.2009.05.029](#)

Source: University of Michigan Health System ([news](#) : [web](#))

Citation: Researchers find new way to attack inflammation in Graves' eye disease (2009, November 6) retrieved 19 April 2024 from <https://medicalxpress.com/news/2009-11-inflammation-graves-eye-disease.html>

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