

Study focuses on relationship between glaucoma and diabetes, hypertension

August 17 2011

Many Americans suffer from diabetes and hypertension and, according to a study by researchers at the University of Michigan Kellogg Eye Center, these individuals may have an increased risk of developing open-angle glaucoma (OAG).

Joshua D. Stein, M.D., M.S., a glaucoma specialist at Kellogg, led a research team that recently reviewed billing records of more than 2 million people aged 40 and older who were enrolled in a managed care network in the United States and who visited an eye care provider one or more times from 2001 to 2007. The researchers found that people with [diabetes](#) alone had a 35 percent increased risk of developing OAG and those with hypertension alone had a 17 percent increased risk. For people with both diabetes and hypertension, there was a 48 percent increased risk of developing OAG, the most common form of glaucoma in the country.

The study focused on the possible associations between various components of [metabolic syndrome](#)—a collection of conditions that includes obesity, hypertension, diabetes, and hyperlipidemia (high cholesterol and high triglyceride levels)—that affects one fifth of the U.S. population. The Kellogg researchers also examined how each component increased or decreased the risk of glaucoma.

While the researchers found that diabetes and hypertension increased the risk of OAG, the study showed that hyperlipidemia actually reduced by 5 percent the risk for developing the disease. Further research is under

way to evaluate whether it is the hyperlipidemia itself, the medications used to treat the condition, or both that reduces the risk of glaucoma. Findings from this research may eventually lead to novel treatments for glaucoma.

"Patients who have diabetes and hypertension are already known to be at elevated risk for eye conditions like diabetic retinopathy, a condition that harms the blood vessels in the retina," says Dr. Stein. "This study and others suggest that, for these patients, an increased likelihood of glaucoma is also a concern."

Glaucoma is a leading cause of irreversible blindness worldwide. In the United States, more than 2.2 million individuals have this disease. And, as the U.S. population ages, glaucoma diagnoses are expected to increase. Because OAG symptoms usually don't surface until the disease has progressed, understanding the risks associated with OAG—elevated intraocular pressure, positive family history of glaucoma, increased age and non-white race—will help physicians identify which patients would benefit most from screening and monitoring.

"This study reinforces the importance of regular eye examinations for patients at increased risk of [glaucoma](#), including those with diabetes and [hypertension](#)," says Dr. Stein. "

More information: The study was published online in July in *Ophthalmology*.

Provided by University of Michigan Health System

Citation: Study focuses on relationship between glaucoma and diabetes, hypertension (2011, August 17) retrieved 6 May 2024 from <https://medicalxpress.com/news/2011-08-focuses->

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