

Researchers Show Beneficial Role of Risk Calculator In Fighting Progression of Glaucoma

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A new glaucoma risk calculator, which estimates a patient's risk of converting from high eye pressure, or ocular hypertension, to glaucoma, will help physicians determine whether to initiate therapy for patients. High eye pressure is the leading risk factor for glaucoma, and is the only modifiable one. If glaucoma is untreated, vision loss may continue, leading to blindness in some individuals.

"The risk assessment idea came to me after studying the cardiovascular model which measures cholesterol to determine whether or not to initiate a statin for cholesterol lowering by assessing cholesterol, age, blood pressure, and other risk factors," said Robert N. Weinreb, M.D., Director of the Hamilton Glaucoma Center at University of California, San Diego and Distinguished Professor of Ophthalmology at the UCSD School of Medicine, and co-developer of the calculator. "The glaucoma risk calculator is a tool which allows doctors to better assess patient risk levels and, if needed, recommend treatment options that can help decrease the progression of glaucoma in patients with ocular hypertension."

The risk calculator model will be reported at the American Academy of Ophthalmology annual meeting October 17 in Chicago, Ill., by Weinreb and Felipe A. Medeiros, M.D., Assistant Professor of Ophthalmology, at the UCSD Hamilton Glaucoma Center, lead author of the study demonstrating the risk calculator's effectiveness.

Glaucoma, one of the leading causes of blindness, is an eye disease in which damage to the optic nerve located in the back of the eye results in loss of eyesight. About half of patients with glaucoma have ocular hypertension. Treatment depends on the degree or stage of the glaucoma. Physicians might not prescribe any treatment for ocular hypertension, for example, - when increased pressure in the eye is minimal and no nerve damage is present. Routine monitoring of the patient's peripheral vision and of the appearance of the optic nerve may be sufficient.

The glaucoma risk calculator is based on data collected from the multi-center National Eye Institute-sponsored Ocular Hypertension Treatment Study, which identified key patient risk factors (older age, high intraocular pressure, thinner central corneal thickness, larger vertical cup/disc ratio

measurements and higher pattern standard deviation) predictive of disease progression from ocular hypertension to glaucoma. Although the OHT study results have provided a better understanding of the risk factors involved in the progression from ocular hypertension to glaucoma, physicians still face the challenge of combining these factors to assess for individual patients.

Drs. Weinreb and Medeiros have taken these key factors and examined them in an independent population of 126 untreated patients studied at the Hamilton Glaucoma Center. The Scoring Tool for Assessing Risk (STAR) a five-year glaucoma risk assessment tool determines an individual patient's overall risk of developing glaucoma. Physicians assess the six key risk factors and position their findings at various points on the tool, which can help them determine the risk of conversion from ocular hypertension to glaucoma within the next five years.

"A collective assessment of these risk factors helps physicians identify those patients with elevated eye pressure who are more likely to progress to glaucoma and may benefit from early treatment," said Medeiros.

By identifying patients with a higher chance of developing damage, the risk calculator can help physicians make decisions leading to more rational treatment of patients at highest risk, as well as discontinuing treatment and monitoring of patients at lowest risk. This could result in greater consistency in treatment, improving quality of care for patients with ocular hypertension and a decrease in patients who go on to develop glaucoma.

The risk calculator research was supported by an independent research grant from Pfizer, Inc. The risk calculator research was validated in an independent population—as part of a study by the National Eye Institute sponsored by Diagnostic Innovations in Glaucoma Study.

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