

GLAUCOMA
RESEARCH FOUNDATION

GLEAMS

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www.glaucoma.org

ARE YOU AN OPEN-ANGLE GLAUCOMA SUSPECT?

IF YOU'VE BEEN TOLD YOU ARE A GLAUCOMA SUSPECT, YOU'RE IN GOOD COMPANY—THERE ARE SEVERAL MILLION GLAUCOMA SUSPECTS IN THE USA.

Glaucoma suspects have risk factors for glaucoma, but no proven damage to the optic nerve (yet). Most suspects will never develop glaucoma. But, once vision is lost, we can't restore it, so the key is to decide whom to treat among suspects.

There are 2 main types of glaucoma, *open-angle and angle-closure*, and suspects for each are different. Open-angle suspects have one or more eye findings that suggest a higher risk of having or developing glaucoma than the average person. For example, their measured eye pressure (IOP) can be higher than the average range.

Glaucoma suspects with higher than average IOP, but no damage to the optic nerve, are called *ocular hypertensive*. In some eyes, the real IOP is lower than what's measured because the cornea (the clear front of the eye) is thicker than average. A large clinical trial study found that ocular hypertensives develop true glaucoma at a rate of about 2% per year and that the rate was only half as fast if eye drops to lower IOP were taken. When patients were separated into high, medium and low-risk categories based on several factors measured at the beginning of the study; the high-risk group had the greatest risk of developing glaucoma over time and also benefited the most from treatment to lower IOP.

So, how do you and your doctor decide whether to treat ocular hypertension? It depends on a risk calculation that includes life expectancy, IOP level and other reasons that you can be a suspect. These include:

- having a blood relative with glaucoma
- having optic nerve or visual field findings on the border between glaucoma and normal
- African American ethnicity
- being myopic (near-sighted)
- having a thin cornea
- having conditions called exfoliation or pigment dispersion that increase the risk of developing glaucoma

Neither the glaucoma suspect who chooses treatment nor the one who stays off treatment is making a bad choice. It should be a shared decision between doctor and patient, depending on actual risk and individual risk tolerance. If you are someone who accepts risk easily, no immediate treatment is fine if risk is average. But, some people would lose sleep over possible permanent optic nerve damage, and for them starting treatment is a good option. Life expectancy is part of the decision—if you have significant risk and are relatively young, your chance of developing optic nerve damage during your life time is greater, and treatment makes more sense. *Whether treated or not, glaucoma suspects need detailed monitoring of their optic nerve and visual field every year.*

If glaucoma is caught when the signs are very early and treatment begun at that time, the risk of developing serious visual loss is quite small.

Harry A. Quigley, MD is the A. Edward Maumenee Professor and Director of the Glaucoma Center of Excellence at the Wilmer Eye Institute at Johns Hopkins, in Baltimore, Maryland. He has participated in glaucoma studies worldwide and published over 4,500 peer-reviewed articles.



GRF holds Catalyst Meeting: Solving Neurodegeneration

Neurodegeneration is a condition common to many diseases, both congenital and age-related, and to acute injury and trauma. Even as disease prevalence increases, treatments that protect, repair or regenerate neurons and their pathways remain elusive.

In April 2021, Glaucoma Research Foundation was proud to partner with BrightFocus Foundation and the Melza M. and Frank Theodore Barr Foundation, Inc. to sponsor a two-day “think tank” style catalyst meeting titled “Solving Neurodegeneration.” Over 20 experts with active research programs in glaucoma, macular degeneration, Alzheimer’s disease, and other neurodegenerative disorders gathered virtually to identify major barriers to solving neurodegeneration and regeneration and to discuss key opportunities and even potential breakthrough ideas.



David Calkins, PhD, Program Chair, and Chair of the Catalyst for a Cure Scientific Advisory Board

By challenging conventional wisdom, the participants agreed that new treatments will arise by comparing mechanisms of progression across diseases and conditions and by identifying the common elements that impede translation of laboratory findings to the clinic.

The format of the meeting consisted of brief presentations by the participants focusing on new, unpublished results and outside-the-box ideas and proposals. Each of four sessions of presentations was followed by break-out room discussions summarizing the most promising findings and opportunities for discovery. Presentations included novel research on inflammation, genetics, metabolic and oxidative stress, as well as new approaches to treatments involving stem cell and organoid transplantation, gene therapy, and drug discovery.

Program Chair David Calkins, PhD, who also chairs the Catalyst for a Cure scientific advisory board, noted that many of the participants believe the answer to solving neurodegeneration lies in conducting collaborative research that combines expertise from many disciplines and approaches across diseases. In the coming months, much of the content of the meeting will appear in a point paper that summarizes the most important common elements that characterize progression in neurodegeneration and our best hope for new therapies to help patients with these devastating diseases.

Q&A

Home IOP Measurements

Understanding how your IOP (intraocular pressure) changes over time can help you and your doctor feel confident that your glaucoma treatment is working effectively.



Barbara Wirostko, MD, FARVO is Adjunct Professor of Ophthalmology, Moran Eye Center and Dept. of Biomedical Engineering, University of Utah, SLC. She is an entrepreneur and glaucoma specialist serving as Chief Medical Officer of Qlaris Bio and cofounder for MyEyes.net.

Q Why is Monitoring IOP Important?

A IOP is the key risk factor for glaucoma development and progression. We know that IOP fluctuates constantly, between doctor’s visits, with exercise, during sleep, and even throughout the day. Very much like blood pressure and glucose levels it is helpful to be able to look for “highs and lows.” The more frequently your IOP is measured, the better overall picture your doctor will have of any fluctuations. Currently, the most common way to get this information is to measure IOP in the clinic at different times of day over several visits. With recent advances, IOP measurements are now possible at home, with an FDA approved prescription device called the iCare® HOME. Current in-office diagnostic techniques provide sufficient information to treat most glaucoma patients but in rare cases, monitoring IOP at home may be helpful.

Q What is a Home Tonometer Device?

A The iCare® HOME tonometer is a prescription device that uses a disposable probe to take six

rapid IOP measurements without a numbing drop, then calculates the average IOP and stores it in the device’s memory in the cloud. This device may help to analyze IOP patterns and understand why some glaucoma patients get worse despite good IOP readings in the office.

There are several challenges with using this device and it is not recommended for routine use. Up to 25% of users are not able to successfully measure their IOP with this device. And even those who have been trained and certified to use the device may get some variations between IOP measurements taken close together. Training videos or assistance from a technician may improve usability.

Q How do I access the iCare® HOME device?

A A patient can’t simply purchase or rent this device, a prescription from your doctor is needed. Most patients do not need home monitoring of IOP. But in the few where it might be helpful, I think it is not necessary to own this device; even a week or two of home IOP monitoring might provide useful information.

IN APPRECIATION

We are grateful for the generous and loyal support from all our donors. Following is a listing of recent contributions and pledges at the \$1,000 level and above. Please note these are *new* contributions and pledges received between March 1, 2021 and June 30, 2021 and will not reflect a donor's cumulative giving for the year.

Our new President's Circle recognizes annual donors of \$10,000 or more. To learn more about the benefits of this level and the impact your investment can make, please contact Meredith Gale at mgage@glaucoma.org

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Glaucoma Research Foundation Receives \$1.5 million Challenge Gift for Vision Restoration Initiative

Longtime Glaucoma Research Foundation donors Steven and Michele Kirsch recently made a \$1.5 million challenge gift to fund our Catalyst for a Cure Vision Restoration Initiative.

Launched in 2019, the consortium is exploring many promising avenues of research including optic nerve regeneration, stem cell replacement, and gene-based therapies.

“Once again, we are extremely grateful to Steve and Michele,” said Thomas M. Brunner, President and Chief Executive Officer of GRF. “Steve believes medical research should be collaborative rather than competitive, and he inspired us to establish our Catalyst for a Cure consortium nearly 20 years ago, to join forces with other research institutions to find a cure for glaucoma.” Brunner added, “Steve and Michele also want to encourage others to join this important mission, and have established the gift as a matching opportunity to provide funding of the Catalyst for a Cure Vision Restoration Initiative for the next few years.”

“The first Catalyst for a Cure team redefined glaucoma as a neurological disease and identified some of the very earliest changes of retinal nerve cells long before vision was actually lost. Now the third collaborative research team is focused on vision restoration which is incredibly rewarding for us,” Steve said. “Since critical research is made possible through philanthropy, we are so pleased to provide our gift as a special matching opportunity to inspire others to invest in this important project,” Michele added.

“These successful efforts, launched by Steve and Michele’s generous giving, have stimulated many other organizations including the National Eye



Institute to fund collaborative research,” Brunner said. “Most importantly, they have brought us to the threshold of vision restoration, which provides tremendous hope for patients.”

The most recent gift brings the Kirsch’s total giving to GRF to \$2.7 million since 2002. In recognition of this extraordinary gift, the consortium will be named the Steven and Michele Kirsch Catalyst for a Cure Vision Restoration Initiative.

To participate in the **Kirsch Catalyst for a Cure Challenge**, all gifts received by December 31, 2021 will be utilized to match their gift to raise the additional funds needed to advance the next three-year phase of the Catalyst for a Cure consortium. **To learn more**, visit www.glaucoma.org/donate

When You Have Cataracts and Glaucoma

BY DAVINDER S. GROVER, MD, MPH

Patients with both cataracts and glaucoma require special consideration. Cataracts may naturally coexist with glaucoma, have a causative effect on glaucoma, and/or may even be a result of glaucoma surgery.

When a patient has glaucoma that requires surgery, there is a unique opportunity to remove the cataract without significantly increasing the risk of the glaucoma surgery. Additionally, when a glaucoma patient has cataract surgery, it may be combined with a glaucoma surgery which may decrease the patient's need for glaucoma eye drops or improve eye pressure control without significantly increasing the risk of the surgery in most cases.

Cataract surgery may be combined with one of several glaucoma surgeries including trabeculectomy, glaucoma drainage devices, endocyclophotocoagulation, a microshunt and the spectrum of micro-invasive glaucoma surgeries (MIGS). The MIGS procedures are often combined with cataract surgery since they can usually be performed through the same corneal incision. However, most MIGS procedures rely on the eye's natural drainage system and may not sufficiently lower eye pressure. There are several MIGS options for your surgeon to choose from and he or she will help decide what is best for you based on several factors such as the stage of your glaucoma, general health, age, lifestyle, and tolerance to glaucoma medications.

Cataract surgery alone may be an option. For example, cataract surgery in mild open angle glaucoma or ocular hypertension has been shown to decrease the eye pressure without the need for any glaucoma procedure.

Cataract surgery in a patient with glaucoma may give rise to unique concerns. In pseudoexfoliation glaucoma there is a higher risk of complications due to weakness in the supportive structure of the natural lens (the zonules). Some newer types of intraocular lenses may not be suitable for glaucoma patients because they affect contrast sensitivity or may cause glare. Eye pressure spikes after cataract surgery are more common in patients with underlying glaucoma and importantly, glaucoma patients are more likely to develop optic nerve damage from a transient increase in eye pressure. Eye surgeons who regularly care for patients with both cataracts and glaucoma are prepared for the unique challenges associated with performing combined cataract and glaucoma surgery.

To conclude, in patients with coexisting cataract and glaucoma, surgical treatment requires special considerations. There are several treatment options and variables to consider before deciding on the best surgical glaucoma procedure to perform at the time of cataract surgery. A detailed discussion with your eye doctor is important in order to determine the best option for you.



Davinder S. Grover, MD, MPH is an Attending Surgeon and Clinician at the Glaucoma Associates of Texas, located in Dallas, Texas. He specializes in innovative glaucoma surgeries, complex glaucoma, cataract, and anterior segment surgeries as well as clinical research outcomes in medical and surgical glaucoma.

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