NEW MEDICATION DELIVERY SYSTEMS FOR GLAUCOMA

NOVEL APPROACHES TO DRUG DELIVERY ARE CURRENTLY BEING DEVELOPED WITH A FOCUS ON IMPROVING MEDICAL THERAPY FOR GLAUCOMA PATIENTS.

Glaucoma is a potentially blinding condition if it is left untreated. Treatment for glaucoma consists of lowering eye pressure by various means, and medication eyedrops are the most commonly used method. However, even with treatment, there is risk of not using the medications regularly because of various factors such as difficulty putting drops in the eye as well as side effects and cost of medications. If treatment is not regular, the eye pressure is not well controlled and this increases the risk of damage to the optic nerve.

The anticipated promise is that these new medication delivery systems will further enhance quality of life for patients.

The average patient with glaucoma has three other chronic diseases for which he/she takes 4-5 additional medications. Thus, the barriers to continuing regular medical treatment in patients with glaucoma may be quite significant. A published study identified 71 different obstacles to medication adherence in patients with glaucoma. For these reasons, new medication delivery systems for glaucoma would be a welcome addition to our treatment options.

The basic idea of drug delivery systems for glaucoma is to apply, insert, or inject medication to the eye that releases over weeks or months. Various approaches are being developed that can be categorized as: on the eye, in the eye, and around the eye.

• On the eye: sophisticated new gel drops, contact lenses, or other technologies that release a steady amount of medication over time
• In the eye: implants that release drug over longer periods, requiring less total amount of medication, thus fewer side effects
• Around the eye: punctal (tear duct) plugs that release medication over time in a relatively non-invasive manner

Next month (February 2020) the Glaucoma Research Foundation will be hosting its annual Glaucoma 360 New Horizons Forum in San Francisco. One of the exciting symposium sessions will address the topic of “New Medication Delivery Systems for Glaucoma.” This discussion will highlight advances in science and medicine that are enabling a whole range of new technologies to deliver anti-glaucoma medications in a more convenient, efficient, and effective manner.

These new options include but are not limited to: implantable extended-release devices, polymer-based contact lens and intraocular delivery technologies, drug-eluting punctal plugs, microneedle-injection devices, and micro-dosing technology. The anticipated promise is that these new medication delivery systems will further enhance quality of life for patients, as well as provide more effective therapies to better preserve vision in glaucoma.

James C. Tsai, MD, is the President of New York Eye and Ear Infirmary of Mount Sinai, and Chair of the Department of Ophthalmology, Icahn School of Medicine at Mount Sinai and the Mount Sinai Health System.
Catalyst for a Cure Scientists Show Progress and Collaboration

In February 2019, Glaucoma Research Foundation launched the Catalyst for a Cure Vision Restoration Initiative with a goal to identify targeted interventions for protecting and restoring the neurons responsible for vision.

The Catalyst for a Cure (CFC) Vision Restoration principal investigators met in August 2019 with their scientific advisors to report on their first six months working together as a team. The ambitious goal of the CFC research team is to figure out how to restore vision lost to glaucoma. David Calkins, PhD, Chair of the CFC Scientific Advisory Board, remarked, “The collaboration has been outstanding as the scientists have visited each other’s labs and have shared ideas and materials.” They met again in October at Yang Hu’s laboratory at Stanford and in November at a vision restoration workshop in Miami to continue their discussions and collaborative investigations.

RESEARCH MILESTONES
One key accomplishment in the first year was the creation of new biologic tools to identify the different types of retinal ganglion cells responsible for connecting the eye to the brain and transmitting visual images from the retina. Another milestone was developing screening techniques to allow specific types of cells to be collected. Perhaps the most important discovery of the first year was a new strategy that not only increased the survival of retinal ganglion cells, but also promoted the growth of new axons, the fibers that make up the optic nerve and connect to the brain.

A STRONG START
The Catalyst for a Cure advisors and scientists are pleased with the strong start to the project. The next step will be for the team to demonstrate their first-year advances in models of glaucoma that they hope will lead to vision restoration. The CFC team will meet with their scientific advisors again in February 2020, in San Francisco. There they will present a final report on their first-year progress and plan for the second year of their research to protect and restore the retinal nerve cells lost in glaucoma.

The Catalyst for a Cure principal investigators are Yang Hu, MD, PhD, Derek Welsbie, MD, PhD, Anna La Torre, PhD, and Xin Duan, PhD
What are the symptoms of angle-closure glaucoma?

Primary angle-closure is a condition in which the angle is closed in many or most areas; this can cause increased eye pressure which can lead to optic nerve damage. Treatment in the early stages can help minimize the risk of developing glaucoma. In most patients with primary angle-closure, there is a gradual rise in eye pressure and there are no noticeable symptoms.

Less commonly, the eye pressure increases rapidly and is called an acute attack of angle-closure. Here, the pressure level is extremely high and optic nerve damage can occur quickly. Some patients with angle-closure may have transient episodes of high eye pressure which can be mistaken as migraine headaches.

Symptoms of acute angle-closure are very noticeable, and can include hazy or blurred vision, severe eye and head pain, nausea or vomiting (accompanying severe eye pain), the appearance of rainbow-colored circles around bright lights, or sudden sight loss. If you experience any of these symptoms, seek immediate care from an eye doctor.

What are the symptoms of open-angle glaucoma?

In the most common form of glaucoma, primary open-angle glaucoma (POAG), buildup of fluid pressure in the eye happens very slowly. The angle where the iris meets the cornea is open but the eye’s drainage canals become clogged over time, causing an increase in eye pressure and subsequent optic nerve damage.

There are typically no early warning signs or symptoms of POAG. Most people who have POAG feel fine and do not notice a change in their vision at first because the initial loss of vision is of the side or peripheral vision, and the visual acuity or sharpness of vision is maintained until late in the disease.

By the time a patient is aware of vision loss, the disease is usually quite advanced. Vision loss from glaucoma is not reversible with treatment, even with surgery. Because POAG has few warning signs or symptoms before damage has occurred, it is important to see a doctor for regular eye examinations. If glaucoma is detected, your eye doctor can prescribe a preventive treatment to help protect your vision.

Sunita Radhakrishnan, MD specializes in the medical and surgical treatment of glaucoma at the Glaucoma Center of San Francisco and is Research Director at the Glaucoma Research and Education Group in San Francisco.
IN APPRECIATION

We are grateful for the generous and loyal support from all of our donors. Following is a listing of recent contributions and pledges at the $1,000 level and above; including members of The Catalyst Circle and institutional donors. Please note these are new contributions and pledges received for The Cure is in Sight Campaign between July 1, 2019 and October 31, 2019 and may not reflect a donor’s cumulative giving for the year.

VISIONARIES ($250,000+)
Barry Friedberg
Thomas O’Rourke, in memory of
Donald H. O’Rourke, MD
Anu and Matthew Tate

BENEFACTORS ($100,000 to $199,999)
PM - Chang Family Charitable Trust

PACESETTERS ($25,000 to $49,999)
Nancy and Patrick Forster

PATRONS ($10,000 to $24,999)
Aerie Pharmaceuticals, Inc.
Carl Zeiss Meditec, Inc.
Flying L Partners
Glaukos Corporation
Haag-Streit USA, Inc.
Shuntech Biodevices, Inc.
Marion H. Swarthout
And one anonymous donor

SPONSORS ($5,000 to $9,999)
Akorn, Inc.
Allergan, Inc.
Susan Glikbarg Hanson
Thomas and Jahanna Knight
Robert T. Levine, MD
Lumenis, Inc.
Ophthalmic Mutual Insurance Company
Optovue, Inc.
Paul A. Ridder
Ernest and Geraldine Smith

PRESIDENT’S CLUB ($1,000 to $4,999)
Allstate Life Insurance Company
Anonymous gift through Wells Fargo Advisors
Apple Inc.
Rettig and Michele Benedict
Andrew Berliner
Robert F. Blitzer
Thomas Brennann
Frederick H. and Cindy Brinkmann
Lama Al-Aswad, MD
Victoria and Donald F. DeMuth
Carolyn B. Edward
Nan and Robert Fechtner, MD
Violet M. Haelterman
Andrew G. Iwach, MD
Jackson Square Partners Foundation
Irving Jang
Don and Marty Lenzi
Barbara M. Levine
Leslie Beam
Linda and Donald Linck, DDS
Lawrence S. Lipkind, DDS
Merchey Charitable Donations Fund
James R. Morano, PhD/Innovative Sweeteners
Carolyn M. Neerhof

Caribbean and William North
Tricia and Bobby Ockerhausen
Deirdre Porter and Bradford Hall
Kathryn M. Raines
Rane R. Richardson
Patricia A. Rospenda
Jose Santiago
Bob and Jennifer Sawyer
Jeri Smith
Stephen E. Smith
Naomi and Robert L. Stamper, MD
Margie and Butch Standerfer
Richard N. Steegstra
Trevanion H. Pope
Vincent A. Wallace
Gladys and George Weston, DDS,
“In Loving Memory of Daniel S. Weston”
M.P. and B.J. Zimprich
And two anonymous donors

A special gift was made in loving memory
of Larry Haimovitch, honoring his lifelong
passion for vision care

MAKE A GIFT TAX-FREE WITH AN IRA

If you are 70½ years old or older, you can take advantage of a simple way to benefit Glaucoma Research Foundation and receive tax benefits in return. You can give up to $100,000 annually from your IRA directly to a qualified charity such as ours without having to pay income taxes on the money. Your thoughtful gift can truly make a difference.

To learn more, please contact Nancy Graydon at (415) 986-3162 ext. 231 or ngraydon@glaucoma.org with any questions.

Please consult with your tax professional if you are contemplating this type of charitable gift.
FINDING THE PATH:
From Glaucoma Patient to Vision Advocate

Trinh Green has faced many vision challenges in her life. But that hasn’t discouraged her. Instead, it’s inspired Trinh to become a vision advocate.

Trinh was in high school when she noticed she couldn’t see out of her right eye. The diagnosis was inflammatory eye disease. Thanks to treatment, Trinh began college with her vision restored, and she set her sights on becoming a doctor. But just before medical school, Trinh received a glaucoma diagnosis, and the warning that she could go blind by age 50. “I was scared,” Trinh says. “I was young, and I knew this was going to affect my future.”

Trinh persevered with treatment for glaucoma. But at age 28, she was heading into a critical eye surgery when she discovered she was pregnant with her first child. This new reality made surgery more risky and, because she knew glaucoma can be hereditary, prompted Trinh to think of the future in a different way.

How did Trinh carry on? She faced her fears. She learned everything she could about glaucoma. And she found doctors she could partner with. Today, after years of eye drops, laser treatments, device implants, a corneal graft, even treatment to eliminate a tumor that threatened one eye, Trinh has a gratifying family practice with Asian Health Services, working with underserved immigrant patients. She also parents three active kids. And she does it all with 20/20 central vision.

“People think glaucoma is an ‘old person’s disease’ you can’t do anything about. I’m proof that isn’t true. Thanks to the Foundation, there is help, and there is hope.”

Trinh’s experience with glaucoma has empowered her to help others. After learning about Gleams, she became actively involved with Glaucoma Research Foundation. In 2005, she made her first philanthropic gift to GRF, investing in the search for a cure that could serve her children, if they face glaucoma. In March 2019, she attended the first annual Glaucoma Patient Summit, connecting with fellow patients and with vital resources.

“Glaucoma affects many people who don’t know they have the disease,” says Trinh. “For those who don’t get treated, it can be devastating. When you support GRF, you change lives by providing access to education. You enable people to retain vision and live full lives,” Trinh says, “even with glaucoma.”
SECOND ANNUAL PATIENT SUMMIT PLANNED FOR MAY 2020

The second annual Glaucoma Research Foundation Patient Summit will take place in Oak Brook, Illinois (near Chicago) on May 2, 2020.

Sessions and topics at the Glaucoma Patient Summit will include:
- Living with glaucoma — a patient’s perspective
- Glaucoma overview: types of glaucoma, eye pressure, etc.
- Current and new pharmaceutical treatment options
- Current and new laser and surgical treatments
- Promising research on the horizon — the path to a cure
- Clinical trials – are they right for you?
- Questions and answers: tips for glaucoma patients
  - Working with your doctor
  - Being your own advocate
  - Home testing
  - Financial assistance
- Living with glaucoma
  - Diet and exercise tips
  - Alternative therapies, acupuncture, meditation
  - Driving and your independence
  - Coping with glaucoma: support resources
  - Low vision and technology tips

There will also be plenty of time for questions and answers during the sessions, and networking with other glaucoma patients as well as doctors who specialize in glaucoma during breaks between sessions.

Learn more and register at www.glaucoma.org/summit
GLEAMS
Glaucoma Research Foundation
251 Post Street, Suite 600
San Francisco, CA 94108

The Cure is in Sight
GLAUCOMA 360
ANNUAL GALA
JOIN US ON FEBRUARY 6, 2020
www.glaucoma.org/gala

Gleams is published three times a year by Glaucoma Research Foundation. 251 Post Street, Suite 600, San Francisco, CA 94108 Web: www.glaucoma.org Telephone: 415-986-3162 Toll Free: 800-826-6693 Email: gleams@glaucoma.org To unsubscribe, call 1-800-826-6693 or email “unsubscribe” to gleams@glaucoma.org.

©2020 by Glaucoma Research Foundation. All rights reserved. No parts of this publication may be reproduced without permission from the publisher. Gleams articles are intended to help readers understand glaucoma. Every effort is made to assure the accuracy of this information. This information is not a substitute for the advice and recommendations of a health professional. Always consult a health professional prior to any decision regarding your eyes or other health concerns. ISSN #1072-7906