As of mid-June, 11 states and DC have pending legislation or ballot measures that would allow patients to use marijuana as medicine for certain conditions or illnesses. Another 14 states have already legalized the medical use of marijuana. In many of these states, the illnesses cited include glaucoma among other conditions ranging from cancer to multiple sclerosis, arthritis, migraines, severe nausea and seizures.

Glaucoma is often cited by advocates of legalization because marijuana can lower the pressure inside the eye, and elevated intraocular pressure can lead to damage of the optic nerve and loss of vision. But medical experts believe that marijuana could actually prove harmful for glaucoma patients.

“We are afraid that people will self-treat their glaucoma with marijuana,” says Dr. James Tsai, chairman of TGF’s Medical Advisory Board and chairman of the Department of Ophthalmology and Visual Science at Yale University School of Medicine. “They think that even if this unconventional therapy doesn’t work, it can’t possibly hurt their disease. However, studies suggest that it might in fact be damaging.”

Glaucoma experts believe it is ill-advised to use marijuana to treat the disease for two reasons. Marijuana only lowers pressure for several hours, requiring patients to continuously medicate day and night. Failing to do so can lead to a rebound spike in eye pressure, which can be damaging. There is also growing evidence that inadequate blood supply to the optic nerve may contribute to glaucoma damage. Since marijuana given systemically is known to lower blood pressure, it is possible that such an effect could lead to optic nerve damage. Moreover, marijuana’s mood altering effects would prevent the patient who is using it from driving, operating heavy machinery, and functioning at maximum mental capacity.

The American Glaucoma Society was concerned enough that it published an editorial in the February issue of the Journal of Glaucoma, warning against marijuana use to treat glaucoma. “Marijuana, or its components administered systemically, cannot be recommended without a long term trial which evaluates the health of the optic nerve,” said the editorial.

“Although marijuana can lower the intraocular pressure (IOP), its side effects and short duration of action, coupled with a lack of evidence that its use alters the course of glaucoma, preclude recommending this drug in any form for the treatment of glaucoma at the present time.

“Unless a well tolerated formulation of a marijuana-related compound with a much longer duration of action is shown in rigorous clinical testing to reduce damage to the optic nerve and preserve vision, there is no scientific basis for use of these agents in the treatment of glaucoma.”
Dear Friends:

It may still be summer, but we are looking ahead to the fall, planning The Glaucoma Foundation’s 17th Annual Think Tank, the primary research event of our calendar year. This annual scientific gathering is the only forum for a community-wide discussion on developing new approaches to preventing and curing blindness from glaucoma. It seems the ideal forum for the glaucoma community to discuss the “Complex Genetics and Genomics of Glaucoma,” this year’s timely theme.

Bringing together people working in glaucoma research and other areas of ophthalmology with scientists working in other disciplines has been the Think Tank’s unique formula to stimulate discussion that can lead to novel research ideas.

Last year’s Think Tank focused on exfoliation syndrome (XFS), the most common type of secondary glaucoma with an aggressive course and resistance to medical therapy. It is most encouraging that two of six new research grants just approved by the Board of Directors will be used to study aspects of this syndrome.

The approval in June of these six grants, totaling $260,000 in funding, is a record number of grants awarded by TGF in one grant cycle. The projects will be conducted at university centers in Boston, MA; Chicago, IL; Durham, NC; Honolulu, HI; Quebec, Canada and Mainz, Germany.

Private funding remains critical to funding the types of innovative projects that The Glaucoma Foundation has historically encouraged. We are most grateful for the ongoing support from so many. And it is gratifying that already in 2010 we have received $500,000 in bequests from friends and others not previously known to us – individuals who have sought out The Foundation because they share our ultimate mission of eradicating blindness from glaucoma.

As we work toward finding new treatments and hopefully a cure, we continue to reach out to glaucoma patients through our website, newsletter, educational programs and online support groups. Most recently, we have launched a monthly electronic newsletter to update the glaucoma community with valuable news and information.

We value the role that you, our long-time friends, play in all these efforts and are grateful for your ongoing commitment.

Sincerely,

Scott R. Christensen
President
Chief Executive Officer
Can glaucoma be prevented?

Most types of glaucoma cannot be prevented. And while vision loss due to glaucoma can not be recovered, further vision loss can hopefully be prevented with appropriate treatment. Early detection, ongoing treatment and monitoring are key factors to limiting damage from the disease, which lasts a lifetime. Some types of secondary glaucoma, for example resulting from an eye injury, such as being hit in the eye by a ball, or from certain diseases, such as diabetes, may be preventable with measures such as protective eyewear to avoid eye injuries and proper management of diabetes.

Do eye drops lose their effectiveness over a long period of time?

Different drops work for different lengths of time in various people. Although drops sometimes work for decades, over time some of the medications you are using may start to work less well or the reduced effect of the drop may simply reflect the progression of the disease process. For this reason, it is important to have regular checkups so adjustments to your treatment can be made by your physician before your condition worsens. Adjustments may include changing the drops you are using or using a different combination of drops that may be more effective in controlling the pressure in your eye.

What can I do for my dry eye condition?

Dry and irritated eyes, particularly common among older people, can be related to a hot, dry climate, airplane travel, too many hours in front of a computer screen, or even taking some types of glaucoma medications. The main treatment for relief is the use of lubricating artificial tears, available as over-the-counter eye drops, to replace natural tears and also provide an artificial protective coating for the eye. Leave at least five minutes between applications of the eye drops used to treat glaucoma and the artificial tears, in order to keep from washing the glaucoma drop out of the eye. Generally, the artificial tears should be used after the glaucoma eye drops. For more severe cases, a thicker gel or ointment can be used at night or a prescriptive artificial tear is available.

Are diabetics at greater risk for glaucoma?

While the link between diabetes and primary open-angle glaucoma (POAG), the most common form of the disease, hasn’t been proven conclusively, some new studies are pointing in that direction. There’s also one form of the disease, neovascular glaucoma, that is known to be directly related to diabetes. The most important thing anyone with diabetes can do is to get regular annual eye exams for glaucoma and other serious eye diseases associated with diabetes.
Clinical Trials Update

Several important federally-funded glaucoma clinical trials have recently released new reports on their findings.

The Ocular Hypertension Treatment Study (OHTS), sponsored by the National Institutes of Health (NIH)-National Eye Institute (NEI), ran from 1994 until 2009. The study examined the value of earlier vs. later treatment in preventing primary open-angle glaucoma in individuals with ocular hypertension – i.e. individuals whose eye pressure (IOP) is higher than normal but who have no optic nerve damage or visual field loss.

For the first seven years, half of the subjects with elevated IOP received eye drops. The other half were closely monitored but received no medication. That first phase determined that eye drops to lower IOP reduce the chance of developing glaucoma by more than 50 percent.

Reporting on the study’s second phase, researchers have now determined that for some people, close monitoring is an appropriate option to medication if no glaucoma damage has occurred. Patients at higher risk, such as those who have elevated pressure and another risk factor, should be treated with pressure-lowering drops.

The key risk factors considered: the patient's age (older age increases risk), more elevated IOP, cup/disc ratio (a measure of the appearance of the optic nerve visible inside the eye – higher values increase the risk), corneal thickness (thinner corneas increase the risk) and pattern standard deviation (a measurement derived from computerized visual field tests).

Individuals of African ancestry as a group appear to have thinner corneas and a slightly different anatomical structure of the optic nerve than other ethnic backgrounds. Because of elevated risk, screening and close monitoring for glaucoma are particularly appropriate.

TGF board member Dr. Jeffrey M. Liebmann, principal investigator at the New York Eye and Ear Infirmary clinical site of the study, stressed the importance of regular eye examinations and talking to your doctor about your risk for developing the disease and whether you should have preventative treatment.

The coordinating study center for this nationwide project was at Washington University School of Medicine in St. Louis, MO.

The NEI-funded African Descent and Glaucoma Evaluation Study (ADAGES), begun in 2002, is designed to identify factors that account for differences in the onset of glaucoma and its rate of progression between individuals of African and European descent.

Clinical observations demonstrate that primary open-angle glaucoma (POAG), the most common form of the disease, appears 10 years earlier in persons of African ancestry and progresses more rapidly. Glaucoma is about four times more common in African-Americans.

Among the goals of the study is gathering information to determine which advanced imaging techniques can best detect damage to the optic nerve related to glaucoma. An objective is to define differences in optic disc, retinal nerve fiber layer, and macular structure between participants of African and European descent. Dr. Christopher Girkin of the University of Alabama, one of the lead investigators, predicted that developments in imaging will one day enable researchers to view individual cells in the eye and determine physiological changes that could be associated...
Exercise and Glaucoma
Staying Fit is Good for your Eyes

While the keys of glaucoma therapy are lowering intraocular pressure (IOP) with medication, laser treatment or surgery, there is some evidence that a regular aerobic program can help support your medical therapy.

Studies have looked at different types of aerobic exercise – bicycling, brisk walking, jogging, swimming, gym conditioning – and determined that IOP falls substantially with aerobic type exercise three times a week, with elevated heart and respiratory rates sustained for 20 to 30 minutes. Some studies also have found that exercise improves blood flow to the retina and optic nerve. But there’s a catch. The benefit continues only as long as you continue exercising. In a study of sedentary glaucoma suspects, just three weeks of deconditioning undid the beneficial effects.

There are also some types of exercise to avoid as they may have a negative impact on IOP. Exercises in which you stand on your head or shoulders or invert your body – as in upside-down yoga positions, scuba diving and bungee jumping – should be avoided as they can raise IOP. Exercises in which you inhale and then hold your breath – as in weightlifting – appear to have a negative impact on IOP as well.

Also, some forms of glaucoma (such as closed angle) are not responsive to the effects of exercise and others (such as pigmentary glaucoma) may develop a temporary increase in IOP after vigorous high-impact exercise.

The bottom line? While a regular program of moderate exercise will have multiple benefits for your overall health, always check with your ophthalmologist and your general physician before starting any new exercise regime!

And remember that while drinking plenty of fluid is important before, during and after exercising, drink fluids slowly. Drinking a quart of water within 15 to 30 minutes can cause a rise in IOP. Use common sense as to how fast it goes down!
Patient Support in the Midwest

Liane Seyk, who heads up TGF’s Midwest chapter efforts, got involved with the Foundation some years ago, when she browsed the website regarding her own glaucoma. That led to her attending The Foundation’s annual Scientific Think Tank, and to her interest in starting up a program in the Chicago area, where she lives.

“Patients should be educated consumers,” she says. “Too many don’t know what to ask their doctors or are afraid to ask important questions. Chapter programs can help them be knowledgeable about their disease. That’s very important to me.”

But setting up chapter programs is not easy. The key, Seyk believes, is to reach out to the medical community, to forge a relationship and convince doctors that collaborative efforts will benefit their patients. The first step, perhaps the most difficult, is to have a doctor or medical group let their patients know that such support exists in their community.

Her greatest success has been in Madison, Wisconsin, home of the University of Wisconsin, where her own ophthalmologist works and resides and where a clinic exists. “We’ve had over 100 patients involved and get an average of 40 to 50 people to come to our programs, where different speakers address a variety of pertinent issues.” The three most popular, according to Ms. Seyk, are discussions about the nature of glaucoma, about glaucoma medications and about cataracts and glaucoma. These programs also serve to introduce the community to The Glaucoma Foundation and its role in fighting the disease and educating the patient community.

Efforts continue in the Chicago area, with plans to begin a program on Chicago’s South Side to make contact with African-American residents, who are at particularly great risk for the disease.

If you’re interested in starting a chapter in your city, please contact Kira Zmuda (kzmuda@glaucomafoundation.org) to learn more.

Clinical Trials continued from page 4

with disease progression and visual impairment far earlier. “For the new technologies to be useful in providing more efficient and high quality care to at-risk minority populations,” he says, “it is critical that long-term studies using these devices continue to determine how best to detect progressive injury in this chronic blinding disease.”

Dr. Liebmann, who is co-investigator in the ADAGES study, underscores the need for long-term glaucoma studies. “Glaucoma is the most common neuro-degenerative disease,” he says. “But because it progresses slowly, it never got the attention it deserves. More clinical trials are needed. Patients should encourage their glaucoma physicians to encourage legislators to advance the funding for long-term projects.”

Another population-based study is the Los Angeles Latino Eye Study, (LALES), which began in 2002 as the nation’s largest and most comprehensive study of vision among Latinos. “This study has shown that Latinos develop certain vision conditions at different rates than other ethnic groups, said Rohit Varma, MD, of the Doheny Eye Institute, University of Southern California, and principal investigator of the study.

In 2004, the study released its first report about the prevalence of open-angle glaucoma and ocular hypertension in Latinos. Although many population-based studies had documented the prevalence of glaucoma in black and non-Hispanic whites, few had focused on Latinos, the fastest growing segment of the U.S. population. The study reported that Latinos in the study, with a predominantly Mexican ancestry, have rates of open-angle glaucoma comparable to those of U.S. blacks and significantly higher than those seen in non-Hispanic whites. Latinos also have a comparable high prevalence of ocular hypertension.

A second phase report, released this May, found that Latinos have higher rates of developing visual impairment, blindness, diabetic eye disease and cataracts than non-Hispanic whites. Glaucoma was not addressed in the new report – a paper on the incidence of glaucoma is currently being prepared, according to Dr. Varma.
New TGF Board Member

Salvatore P. Ciampo
Salvatore P. Ciampo is Senior Director of Facilities Management at the Albert Einstein College of Medicine of Yeshiva University in the Bronx, New York. He has been in the higher education facilities and construction field for over 25 years. Before coming to Einstein, he was Vice President of Health Care and Education for a real estate and construction consulting firm, HE2 Project Development LLC. He previously spent 23 years at St. Johns University, culminating in the position of Associate Vice President of Facilities and Construction.

Mr. Ciampo participates in charitable endeavors such as the Boy Scouts of America and the Theodore Roosevelt Council, where he currently serves as the Vice President of Program. He participates in civic organizations such as the Lions Clubs International, where he has been a member for over 25 years.

New Medical Advisory Board Member

Dr. Jillia Edris Bird
Dr. Jillia Edris Bird, OD, has been a solo private optometric practitioner in St. John’s, Antigua, since 1991. She received a BSc (Chemistry/Applied Chemistry) degree from the University of the West Indies, Mona, Jamaica, in 1979, and her OD/MS (Visual Sciences) from the State University of New York College of Optometry in 1989.

Immediately following her studies, Dr. Bird served for two years as assistant to the clinical investigator of the State University of New York at Stony Brook’s Glaucoma Population Study, working on the Barbados Eye Study in Bridgetown, Barbados.

She is president-elect of the Caribbean Optometrists Association (CARIOA) and president and founder of the Antigua and Barbuda Glaucoma Support Group. A board member of the World Glaucoma Patient Association, Dr. Bird has worked closely with The Glaucoma Foundation as the Caribbean Co-coordinator of the World Glaucoma Week Committee. Dr. Bird is also a member of the ALDOO (Latin American Optometric Association) Health Committee.

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Characterization of Modifiers for Open-Angle Glaucoma by Candidate Gene Screening and Genome Wide Linkage Study
DNA mutations often cause glaucoma. To date, four glaucoma genes have been discovered: myocilin, optineurin, WDR36 and neurotrophin-4. One of these, WDR36, may be a gene that also affects the severity of glaucoma. An earlier finding raised the possibility that “good” genes, named protective modifier genes, maintained healthy vision by counteracting the effects of the “bad” genes. The goal of this research is to discover these modifier genes. The project will first test if WDR36 is really a modifier and then localize other modifier genes. We will then characterize these genes by exploiting powerful methods in the new field of genomics. Identification of these “healthy” protective modifier genes should offer new approaches to treat and perhaps prevent glaucoma.

Deepak Shukla, PhD*
Associate Professor, Dept. of Ophthalmology and Visual Sciences
University of Illinois at Chicago

Novel Peptides to Understand Herpetic Damage to Human Trabecular Meshwork via Actin Rich Nanotubular Structures
The cells of the trabecular meshwork help regulate the normal intraocular pressure. Herpes virus can infect and destroy these cells and also the optic nerve, causing serious damage. Our goal is to understand how the virus infects these cells and then design new agents to block that process. To achieve this goal we have identified certain cellular receptors that help the virus invasion process by forming nano-size structures for virus spread from cell to cell. We plan to destroy the ability of the virus to form such structures, using small but highly potent peptides that will affect multiple pathways in virus spread process. These peptides will be isolated by a specialized process and then tested for their ability to prevent the damage to the trabecular meshwork cells by ocular Herpes infection.

Franz H. Grus, MD, PhD
Dept. of Ophthalmology
University Medical Center of the Johannes Gutenberg University
Mainz, Germany

Detailed Analysis of the Autoimmune Component of Normal-Tension Glaucoma Via Microarray Screening
The immune system of glaucoma patients can attack some of the body’s own ocular proteins. We will attempt to detect antigens specifically affected by antibodies in normal-tension glaucoma (NTG) patients. We will conduct a highly precise microarray approach analyzing the antibody patterns and especially the reactivities of different antibody subclasses in study groups from Germany and the U.S. Results of this study will give more detailed insights on antibody classes involved and draw conclusions on further components of the immune system in glaucoma pathogenesis.

* Renewal Grant
Katalin Csiszar, PhD
Professor, Dept. of Anatomy, Biochemistry & Physiology
John A. Burns School of Medicine, Honolulu, Hawaii

LOXL1-Associated Pathomechanisms in Pseudoexfoliation Glaucoma
This study aims to uncover the association between the LOXL1 gene that results in the development of exfoliation syndrome (XFS) and exfoliative glaucoma (XFG). LOXL1 is a major genetic risk factor for XFS and XFG, but its exact role remains unknown. We will test the hypothesis that disease risk alleles of LOXL1 affect interactions of the LOXL1 protein with two regulatory proteases, BMP1 and Cathepsin B, adversely influencing LOXL1 activation or degradation with the consequent development of XFG. It is anticipated that the new data will identify the mechanism responsible for the development of XFS and advance the development of novel therapeutic approaches for the treatment of XFG.

Bruce R. Ksander, PhD
Associate Professor, Schepens Eye Research Institute
Harvard Medical School, Boston, Massachusetts

Fas/FasL is a Critical Regulator of Apoptosis and Retinal Degeneration in Glaucoma
Retinal ganglion cells are the cells that transmit visual images through the optic nerve to the brain and that die in glaucoma. It is unclear to scientists exactly why these cells die. One of the signals that causes cells to die (called Fas Ligand or FasL) can be expressed in two different forms. The first triggers the cells to die, and the second prevents the cells from dying. Whether the retinal cells die ultimately depends upon which form of this signal prevails. We have developed mice that are genetically altered so that they produce only the signal that triggers cell death. If these predictions are correct, then these mutant mice will display an accelerated and more severe form of glaucoma. Future studies would then be directed at developing mutant mice that only express the signal that blocks cell death. These mice should be resistant to glaucoma.

Yutao Liu, PhD
Assistant Professor, Department of Medicine
Duke University, Durham, North Carolina

Roles of Regulatory Variants for LOXL1 in Pseudoexfoliation Glaucoma
Exfoliation syndrome is the single most identifiable cause of open-angle glaucoma in the world. Coding variants in the lysyl oxidase-like 1 (LOXL1) gene are associated with the increased risk of exfoliation glaucoma across many different populations. New evidence suggests that the coding variants currently known are not the major cause of exfoliation glaucoma. This project will study the part of the LOXL1 gene that regulates its activity and may be responsible for causing exfoliation glaucoma. This is a crucial step in understanding how exfoliation glaucoma develops and will lead the way to new treatment approaches.
Lunch and Learn Helps Train Senior Volunteers

“Early diagnosis is key,” says Harriet Stollman, Director of DFTA's Health Promotion Unit, “the senior volunteers learned the important fact that diagnosis is crucial.”

The seniors are asked to speak to others—to go into the field to educate those volunteers not at the workshops on various health issues. The first year’s topic was colon cancer; the second year, osteoporosis; and this year is glaucoma.

The unit’s mission is to educate other seniors about glaucoma. Board Member, Maureen Luntz, recently helped train 150 senior volunteers in New York City so that they can educate others about glaucoma as well.

A number of the Glaucoma Foundation’s members have been epicenters of our growing network of volunteers who are dedicated to promoting awareness of glaucoma and its prevention.

Change

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