

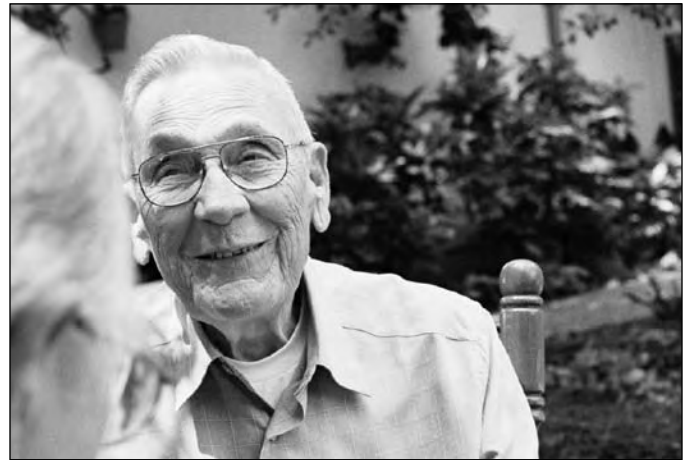
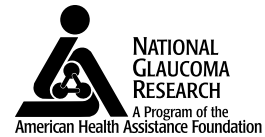
Keeping an Eye on Vision

Loss of sight is the top health-related concern in the U.S., according to a recent survey. Vision loss was identified more often than fear of cancer or fear of contracting HIV/AIDS. Americans have reason to worry. As our population ages, the number of those affected by degenerative eye diseases continues to grow. An estimated nine million Americans have intermediate or advanced age-related macular degeneration (AMD). One in seven people over 60 have AMD; and more than one in three over the age of 80 are affected. Approximately three million people have glaucoma. While Caucasians are more likely than African Americans to contract AMD, glaucoma is a leading cause of blindness among African Americans and Hispanics.*

As the incidence of AMD and glaucoma rises, it is vital that those affected have information on diagnosis, treatment and adaptation to these diseases. Neither of these eye diseases is curable, but they are treatable, and often - especially in the case of glaucoma - early diagnosis and treatment can slow or prevent at least some vision loss. Further, vision loss does not necessarily mean complete loss of independence. There are numerous resources available, and many simple techniques the patient can use to adapt to a new “way of seeing.” There is also help for family and friends of those with low vision. Finally, there is a strong research community investigating potential cures for AMD and glaucoma.

Macular Degeneration Research (MDR) and National Glaucoma Research (NGR) are dedicated to raising public awareness of these eye diseases and to funding research related to them. MDR and NGR are programs of the American Health Assistance Foundation (AHAF), a non-profit organization committed to eradicating age-related and degenerative diseases through research and public education.

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diseases. Please contact Kelly Herberger at 301-948-3244, 1-800-437-2423 or kherberger@ahaf.org if you have questions. ■

* Survey conducted by the American Foundation for the Blind.

Two Forms of Age-Related Macular Degeneration (AMD)

There are two forms of AMD, “dry” and “wet.” The macula is the center of the retina that allows people to see color and fine detail. In dry AMD the light sensitive cells in the macula break down, causing blurred central vision, a blurred spot in the center of the field of vision and gradual loss of central vision. Ninety percent of those affected have dry AMD, which may occur in one or both eyes. A common sign of dry AMD is drusen, yellow deposits under the retina. Many people over 60 have drusen, and alone, it usually does not cause vision loss. However, an increase in the size and number

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Lucentis™ and Avastin® The Treatment Debate

Scientists generally agree that a protein called vascular endothelial growth factor (VEGF) is responsible for triggering and sustaining the blood vessel growth that leads to vision loss in wet AMD. VEGF also controls vascular permeability. Therefore, treatment has focused on inhibiting the action of VEGF. Laser coagulation, photodynamic therapy and macular surgery are also used to stop blood vessel growth and leakage in this form of the disease.

Two VEGF inhibiting drugs have been successful in slowing and even restoring some vision loss in patients with wet AMD. Macugen® (pegaptanib sodium) and Lucentis™ (ranibizumab) were approved by the U.S. Food and Drug Administration (FDA) in 2004 and 2006, respectively. As a treatment, a physician will administer a series of injections of either drug at regular intervals over the course of months or a year. Macugen has been shown to reduce moderate vision loss in patients with wet AMD; those with early stage wet AMD had better results. Lucentis slows the rate of progression of vision loss in advanced AMD.

Physicians have also been using a drug called Avastin® as an “off-label” treatment for advanced wet AMD, with promising results. Avastin is an FDA-approved blood vessel growth inhibitor used to treat colorectal cancer, but is not approved for AMD. Lucentis and Avastin are manufactured by the same pharmaceutical company, Genentech, Inc. Lucentis is actually a form of Avastin developed by Genentech to specifically treat AMD through the use of smaller molecules for increased penetration of the retina.

While Lucentis costs approximately \$2,000 per injection, each Avastin treatment costs between \$20 and

\$100. Rates differ, but some of the expense of Lucentis is covered by Medicare; Medicaid coverage varies from state to state. As an off-label therapy for AMD, Medicare may offer reimbursement for Avastin only if specific criteria are met. Even without coverage, Avastin may still be less expensive than Lucentis, and many physicians believe both drugs are equally effective. If so, continued use of Avastin might mean less costly treatment for a greater number of AMD patients. However, other aspects of this off-label treatment need to be considered, including the amount used and method of administration. Both of these differ from its use as a cancer treatment, and patients should be informed and asked for consent before a physician treats AMD with Avastin.

The National Eye Institute (NEI) of the National Institutes of Health (NIH) is currently conducting clinical trials to compare the relative efficacy and safety of both Avastin and Lucentis. More information on these trials can be found at: <http://www.nei.nih.gov/neitrials/viewStudyWeb.aspx?id=132>.

For those with AMD, the best course is to consult with a physician regarding various treatment options, and to follow the clinical trials currently underway. ■

The information provided above is a public service of Macular Degeneration Research, a program of the American Health Assistance Foundation (AHAF), and should not in any way substitute for the advice of a qualified health care professional and is not intended to constitute medical advice. All medications and supplements should only be taken under medical supervision. AHAF does not endorse any medical product or therapy.

AMD, continued from front page

of these deposits raises the risk of developing advanced dry AMD or wet AMD. The three stages of dry AMD - early, intermediate and advanced - may occur in one or both eyes, and lead to progressive loss of vision. Dry AMD may or may not change to the wet form of AMD.

Wet AMD is a rarer but more severe form of AMD, and it is always preceded by the dry form. While wet AMD accounts for only 10 percent of all cases, it leads

to 90 percent of legal blindness. In wet AMD, abnormal blood vessels grow behind the macula. This abnormal growth is an attempt by the body to supply more nutrients and oxygen to the retina. As these blood vessels grow, they leak blood and fluid, damaging and scarring the macula and destroying light sensitive retinal cells. The result is distortion or a missing spot in the central field of vision, an inability to see changes in contrast and texture, poor tolerance for changing light levels and a need for brighter light to perform daily activities. ■

Diet and Age-Related Macular Degeneration



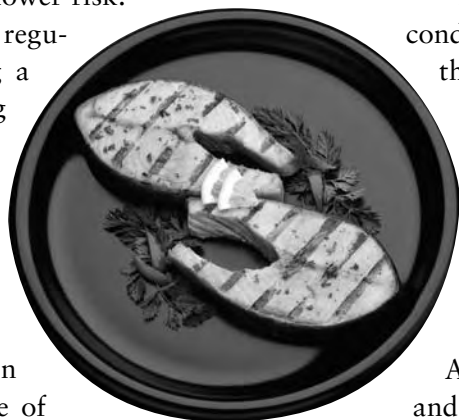
Why are certain people affected by AMD? Is there anything people can do to lower the odds of developing this degenerative eye disease? Researchers have identified aging and smoking as consistent risk factors for AMD. A family history of the disease also increases the chances of developing it. Some studies have focused on gender and ethnicity,

and females and Caucasians appear to be more prone to AMD. High blood pressure, obesity, overexposure to sunlight and a high fat diet may also contribute, but the results of studies on these factors are inconclusive. However, a healthy lifestyle is always advisable and may lower risk.

Everyone benefits from regular exercise, maintaining a healthy weight, keeping blood pressure normal and not smoking.

There is a wealth of evidence linking nutrition to the development of AMD. New research suggests that an increase in dietary intake of omega-3 fatty acids and higher fish consumption can reduce the risk of progressing to the advanced stage of AMD. In addition, higher levels of vitamin D may lower the chance of developing the early stages. Omega-3 fatty acids are found in nuts and seeds, avocados, some dark leafy green vegetables, several types of vegetable oils and “oily” fish like salmon, albacore tuna and sardines. These omega-3 fatty acids may promote cell survival and proper blood vessel function, reduce inflammation and maintain energy balance. Vitamin D may also lower the risk of developing AMD. The main dietary sources of vitamin D are cod liver oil, “oily” fish, fortified milk and cereal, and egg yolks. Vitamin D may reduce inflammation or prevent the growth of new blood vessels.

Since there appears to be a connection between diet and eye health, eating right is important. Although there are no established guidelines regarding the



appropriate amount of omega-3 fatty acid intake, all foods containing omega-3 are part of a nutritious diet. Foods that include vitamin D are also recommended for overall good health.

Zinc and Antioxidants

The Age-Related Eye Disease Study (AREDS), conducted by the National Eye Institute (NEI) found that taking a specific high-dose formula of antioxidants (vitamin C, vitamin E and beta carotene) and zinc may delay or prevent intermediate (dry) AMD from progressing to the advanced dry or wet stage. The AREDS formula did not provide any benefit to people with early stage AMD. The NEI is currently conducting a second AREDS (AREDS2) to further investigate the original AREDS formula, and to study the effects of lutein and zeaxanthin (found in certain foods, including egg yolks and animal fats), and omega-3 fatty acids on the development of advanced AMD.

For those with dry AMD, the AREDS combination of high-dose antioxidants (vitamin C, vitamin E and beta carotene) and zinc may delay or prevent the disease from progressing to the advanced stage. A doctor should be consulted before taking any supplements, since some may interact with other drugs. Frequent regular eye exams are also highly recommended, so that any changes in the retinas of patients with the dry form can be detected early, possibly preventing progression to the wet form. ■



For more information on the AREDS2 clinical trials go to: <http://www.nei.nih.gov/AREDS2/>

In the Eye of the Hurricane

Dr. Nicolas Bazan

“Everyone has inside of him a piece of good news. The good news is that you don’t know how great you can be! How much you can love! What you can accomplish! And what your potential is!” These words, written by one of his heroes, diarist Anne Frank, have always inspired Dr. Nicolas Bazan. But in the aftermath of Hurricane Katrina, they took on a special significance. Dr. Bazan and his researchers at the Neuroscience Center of Excellence at the Louisiana State University (LSU) in New Orleans were hit hard by Katrina. The hurricane devastated the Center, causing millions of dollars worth of damage and costing years of work. The first floor of the Center flooded to the ceiling and power was cut for three months. Laboratory samples stored in refrigerators and freezers were wiped out. Dr. Bazan estimates that one to two years worth of research effort was destroyed. “But we are working seven days a week to catch up,” adds Dr. Bazan. This is the “piece of good news” that these dedicated scientists have found inside themselves, and not only are they recovering, they are moving forward.

Nicolas Bazan, M.D., Ph.D., a native of Argentina, is the founder and current Director of the Neuroscience Center of Excellence at LSU’s Health Sci-

ences Center. Half of the Center is devoted to research in age-related macular degeneration (AMD) and the other half to work in neurodegenerative diseases. Dr. Bazan’s AMD research focuses on a substance found in the retina of the eye called Neuroprotectin D-1 (NPD1). He and his team hypothesize that NPD1 protects retinal pigment epithelial (RPE) cells from the destruction and death caused by AMD. Thus, NPD1 could be a potential target for drug therapies. “We have never been where we are now...instead of looking for ‘targets,’ we may actually have ‘bullets’ to treat this disease,” says Dr. Bazan. These “bullets” are synthetic chemicals, already produced in small quantities, that mimic the protective effects of NPD1. ■



DR. NICOLAS BAZAN

Safeguard Your Sight with Sunglasses

Cumulative exposure to the ultraviolet (UV) radiation from the sun has been linked to an increased risk of developing AMD. UV radiation is composed of invisible, high-energy, sunlight just beyond the violet or blue end of the visible spectrum. It is usually divided into three categories of radiation: UV-C, UV-B and UV-A. UV-C radiation is absorbed in the ozone layer, but UV-A and UV-B are damaging to skin and eyes. To protect eyesight, physicians recommend sunglasses that block 98-100 percent of both UV-A and UV-B rays, and brimmed hats for



additional protection. UV-A and UV-B rays are stronger in the southern climes and in areas of higher elevation, and the greatest sun exposure occurs between 10:00 a.m. and 3:00 p.m.

Sunglasses don’t have to be expensive, but they should be properly labeled. Those that meet minimum standards established by the American Optometric Association (AOA) can use the AOA seal of acceptance. The best sunglasses are those that completely cover the eye and eyelids, and wrap around to the temples to prevent light from entering the sides. ■

Many Missing Out on Glaucoma Treatment

Glaucoma encompasses a group of eye diseases in which high intraocular pressure (IOP) damages the optic nerve, causing visual loss, and potential blindness if left undetected and untreated. The IOP buildup occurs when a fluid called aqueous humor, responsible for maintaining normal pressure and providing nutrients, does not drain properly from the eye. The most common type of glaucoma is primary open angle, but there are several other less common forms that can also cause optic nerve damage and vision loss. The disease progresses slowly over a period of years, and often there are no symptoms or pain until damage has occurred. Once the optic nerve is damaged, it can never be repaired. Millions of people with glaucoma may not know they have the disease until they lose sight that cannot be restored. Although glaucoma is not curable, it is treatable, provided it is diagnosed early and is consistently managed. Normally topical medications (eye drops) are first used to lower IOP, and if these medications fail, surgical options may be explored.

Almost one-third of Americans with primary open angle glaucoma (POAG) are not treated medically or surgically. In a recent study, 30 percent of people surveyed who were diagnosed with POAG did not use glaucoma medication and did not undergo surgery. Consistent use of today's increasingly effective therapies has been proven to reduce the risk of vision loss due to glaucoma. So, this lack of medical treatment is particularly troubling.

The keys to preventing vision loss from glaucoma are education, steady treatment and follow-up. Everyone benefits from learning about the risks of glaucoma, and the importance of scheduling regular eye exams for themselves and loved ones. These exams can detect a buildup of IOP early in the disease. If glaucoma is diagnosed, proper and consistent use of medication and regular follow-up with a physician are essential to controlling eye pressure and preventing optic nerve damage. ■

Visual Rehabilitation

Visual rehabilitation helps people adapt to vision loss and function better, making the best use of remaining sight. Low vision therapists can assist in dealing with specific problems related to glaucoma and AMD. Family and friends, volunteer groups or religious organizations can also help bring the following ideas into your home.

Some ideas for visual rehabilitation:

- Learn to better use peripheral vision (for AMD).
- Use optical devices such as magnifiers.
- Use audio aids for the computer (computer screen reading software) and magnifying screen monitors.
- Use large text when reading, doing puzzles, playing cards, etc.; use audio tapes and books on CD.
- Use reverse telescopes to focus light within the "tunnel" of the eye (for glaucoma).
- Use the array of available household items designed for those with low vision: clocks, watches and telephones with large letters; "talking" scales and tape measures; special safety cutting devices; and large print labels.
- Make changes to the home such as removing inside doors, making thresholds flush with the floor, and using brightly colored tape to mark light switches, thermostats and other fixtures.
- Organize household items by always putting them in the same place.
- Improve lighting in the home: use overhead lights (determine which type of bulbs are best); use task lights to direct light where it is needed; install under-cabinet lighting and extra lighting in hallways and on stairs; and use dimmer switches to control the amount of light in rooms.
- Control glare when outside (amber or dark yellow glasses, caps with brims or visors).
- Use large stickers on the thermostat, stove and other appliances; mark key positions with something that can be felt (for example, nail polish or spots of glue).

Healthy Lifestyle, Healthy Eyes

The following suggestions may protect your vision, in addition to improving your overall health:

- Eat a varied and nutritious diet that includes leafy green vegetables, fruit, fish and foods containing vitamins D, E and C, beta carotene and omega-3 fatty acids.
- Get regular exercise such as walking.
- Maintain a healthy weight.
- Keep blood pressure at a normal level.
- Do not smoke.
- Prevent overexposure to sunlight by wearing sunglasses and hats.
- Regularly visit a physician for comprehensive eye exams.
- Perform Amsler grid tests at home. An Amsler grid is composed of vertical and horizontal lines, with a black dot in the center. For a person with age-related macular degeneration focusing on the black dot, the lines may appear wavy or disappear.*

* *If you would like to order one free Amsler grid magnet that includes instructions for use, please call the American Health Assistance Foundation at 1-800-437-2423.*

Resources for Living Better with Low Vision

Macular Degeneration Research (MDR) and National Glaucoma Research (NGR) are programs of the American Health Assistance Foundation (AHAF), a non-profit organization dedicated to eradicating age-related and degenerative diseases through research and public education. People can order one free copy of the following publications, in English or Spanish: “Macular Degeneration: The Essential Facts” and “The Essential Facts on Glaucoma.” Two booklets are also available, each for a \$5.00 fee, “Living with Macular Degeneration” (40 pp) and “Living with Glaucoma” (34 pp). All publications are in large print. Print copies can be ordered by calling 1-800-437-2423 or online at www.ahaf.org; free electronic versions can be downloaded online at www.ahaf.org. These electronic copies are PDF files that can be read or printed from the computer. ■



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