February is Age-Related Macular Degeneration (AMD) and Low Vision Awareness Month

Sponsored by the National Eye Institute Information Office, February’s designation as Age-Related Macular Degeneration (AMD) and Low Vision Awareness Month is to raise awareness about these disorders. AMD and low vision impact people of all ages but few are aware of their symptoms, risk factors and how to manage these conditions. In the United States, the most common causes of low vision are AMD, cataracts, glaucoma and diabetic retinopathy. AMD is the leading cause of vision loss affecting more than 2 million Americans aged 50 years or more.

Your Eye Team joins the National Eye Institute Information Office in encouraging people to learn more about AMD (link to PDF) and/or Low Vision (link to PDF) with the goal of providing information about proper care of your eyes, these disorders’ risk factors, symptoms and treatment and to help educate others.

Call 913-588-6600 to schedule an appointment with either of our board-certified vitreoretinal specialists, Radwan Ajlan, MBBCh, FRCSC(C) or Mary Champion, MD.

AMD Facts

**AMD**: Causes damage to the macula, a small spot near the center of the retina and the part of the eye needed for sharp, central vision, which lets us see objects that are straight ahead. If the macular is damaged, the center of view may appear blurry, dark or distorted.

AAO video of How the Eye Works and AMD

AMD has few symptoms in the early stages, so it is important to have your eyes examined regularly, especially if you have risk factors for developing this condition.

**Stages**: There are three, which are defined by the size and number of drusen (yellow deposits beneath the retina) present and discoverable only during your eye exam.

- **Early AMD**: medium-sized drusen (about the width of an average human hair) with typically no vision loss.
- **Intermediate AMD**: typically large drusen, pigment changes in the retina or both, changes detectable during an eye exam; may cause some vision loss but most do not experience symptoms.
- **Late AMD**: Vision loss due to damage to the macula, in addition to drusen, with two types:
  - **Dry AMD** – gradual breakdown of light-sensitive cells in the macula that convey visual information to the brain and of the supporting tissue beneath the macula, changes that cause vision loss.
  - **Wet AMD** – abnormal blood vessels grown underneath the retina that can leak fluid and blood, which may lead to swelling and damage of the macula. This damage may be rapid and severe, unless the gradual course of Dry AMD and it is possible to have both Dry and Wet AMD in the same eye and either can appear first.¹
Risk factors:
- **Age** – AMD most likely to occur after 60 years of age
- **Smoking** – Research shows that smoking doubles the risk of AMD.
- **Race** – AMD is more common among Caucasians than among African-Americans or Hispanics/Latinos.
- **Family history and Genetics** – People with a family history of AMD are at higher risk. At last count, researchers had identified nearly 20 genes that can affect the risk of developing AMD. Many more genetic risk factors are suspected. You may see offers for genetic testing for AMD. Because AMD is influenced by so many genes plus environmental factors such as smoking and nutrition, there are currently no genetic tests that can diagnose AMD, or predict with certainty who will develop it. The [American Academy of Ophthalmology](http://www.aao.org) currently recommends against routine genetic testing for AMD, and insurance generally does not cover such testing.

**Does lifestyle make a difference?**
Researchers have found links between AMD and some lifestyle choices, such as smoking. You might be able to reduce your risk of AMD or slow its progression by making these healthy choices:

- Avoid smoking
- Exercise regularly
- Maintain normal blood pressure and cholesterol levels
- Eat a healthy diet rich in green, leafy vegetables

**How is AMD detected?**
The early and intermediate stages of AMD usually start without symptoms. Only a comprehensive dilated eye exam can detect AMD. The eye exam may include the following:

- **Visual acuity test.** This eye chart measures how well you see at distances.
- **Dilated eye exam.** Your eye care professional places drops in your eyes to widen or dilate the pupils. This provides a better view of the back of your eye. Using a special magnifying lens, he or she then looks at your retina and optic nerve for signs of AMD and other eye problems.
- **Amsler grid.** Your eye care professional also may ask you to look at an Amsler grid. Changes in your central vision may cause the lines in the grid to disappear or appear wavy, a sign of AMD.
- **Fluorescein angiogram.** In this test, which is performed by an ophthalmologist, a fluorescent dye is injected into your arm. Pictures are taken as the dye passes through the blood vessels in your eye. This makes it possible to see leaking blood vessels, which occur in a severe, rapidly progressive type of AMD (see below). In rare cases, complications to the injection can arise, from nausea to more severe allergic reactions.
- **Optical coherence tomography.** You have probably heard of ultrasound, which uses sound waves to capture images of living tissues. OCT is similar except that it uses light waves, and can achieve very high-resolution images of any tissues that can be penetrated by light—such as the eyes. After your eyes are dilated, you’ll be asked to place your head on a chin rest and hold still for several seconds while the images are obtained. The light beam is painless.

During the exam, your eye care professional will look for **drusen**, which are yellow deposits beneath the retina. Most people develop some very small drusen as a normal part of aging. The presence of medium-to-large drusen may indicate that you have AMD.
Another sign of AMD is the appearance of pigmentary changes under the retina. In addition to the pigmented cells in the iris (the colored part of the eye), there are pigmented cells beneath the retina. As these cells break down and release their pigment, your eye care professional may see dark clumps of released pigment and later, areas that are less pigmented. These changes will not affect your eye color.

Questions to ask your eye care Professional
Below are a few questions you may want to ask your eye care professional to help you understand your diagnosis and treatment. If you do not understand your eye care professional's responses, ask questions until you do understand.

- What is my diagnosis and how do you spell the name of the condition?
- Can my AMD be treated?
- How will this condition affect my vision now and in the future?
- What symptoms should I watch for and how should I notify you if they occur?
- Should I make lifestyle changes?^1

How is AMD treated?

Early AMD
Currently, no treatment exists for early AMD, which in many people shows no symptoms or loss of vision. Your eye care professional may recommend that you get a comprehensive dilated eye exam at least once a year. The exam will help determine if your condition is advancing.

As for prevention, AMD occurs less often in people who exercise, avoid smoking, and eat nutritious foods including green leafy vegetables and fish. If you already have AMD, adopting some of these habits may help you keep your vision longer.

Intermediate and late AMD
Researchers at the National Eye Institute tested whether taking nutritional supplements could protect against AMD in the Age-Related Eye Disease Studies (AREDS and AREDS2). They found that daily intake of certain high-dose vitamins and minerals can slow progression of the disease in people who have intermediate AMD, and those who have late AMD in one eye.

The first AREDS trial showed that a combination of vitamin C, vitamin E, beta-carotene, zinc, and copper can reduce the risk of late AMD by 25 percent. The AREDS2 trial tested whether this formulation could be improved by adding lutein, zeaxanthin or omega-3 fatty acids. Omega-3 fatty acids are nutrients enriched in fish oils. Lutein, zeaxanthin and beta-carotene all belong to the same family of vitamins, and are abundant in green leafy vegetables.

The AREDS2 trial found that adding lutein and zeaxanthin or omega-three fatty acids to the original AREDS formulation (with beta-carotene) had no overall effect on the risk of late AMD. However, the trial also found that replacing beta-carotene with a 5-to-1 mixture of lutein and zeaxanthin may help further reduce the risk of late AMD. Moreover, while beta-carotene has been linked to an increased risk of lung cancer in current and former smokers, lutein and zeaxanthin appear to be safe regardless of smoking status.^1

Retina Specialist at KU Eye, Radwan Ailjan, MBBCh, FRCSC(C), said, “Wet AMD used to be a devastating disease causing patients to lose central vision, with dedicated research and advances in injectable medications, we are able to save vision is many patients with this disease.”
Advanced Wet AMD

Neovascular (wet) AMD typically results in severe vision loss. However, eye care professionals can try different therapies to stop further vision loss. You should remember that the therapies described below are not a cure. The condition may progress even with treatment.

- **Injections.** One option to slow the progression of neovascular AMD is to inject drugs into the eye. With neovascular AMD, abnormally high levels of vascular endothelial growth factor (VEGF) are secreted in your eyes. VEGF is a protein that promotes the growth of new abnormal blood vessels. Anti-VEGF injection therapy blocks this growth. If you get this treatment, you may need multiple monthly injections. Before each injection, your eye will be numbed and cleaned with antiseptics. To further reduce the risk of infection, you may be prescribed antibiotic drops. A few different anti-VEGF drugs are available. They vary in cost and in how often they need to be injected, so you may wish to discuss these issues with your eye care professional.

- **Photodynamic therapy.** This technique involves laser treatment of select areas of the retina. First, a drug called verteporfin will be injected into a vein in your arm. The drug travels through the blood vessels in your body, and is absorbed by new, growing blood vessels. Your eye care professional then shines a laser beam into your eye to activate the drug in the new abnormal blood vessels, while sparing normal ones. Once activated, the drug closes off the new blood vessels, slows their growth, and slows the rate of vision loss. This procedure is less common than anti-VEGF injections, and is often used in combination with them for specific types of wet AMD.

- **Laser surgery.** Eye care professionals treat certain cases of neovascular AMD with laser surgery, though this is less common than other treatments. It involves aiming an intense “hot” laser at the abnormal blood vessels in your eyes to destroy them. This laser is not the same one used in photodynamic therapy which may be referred to as a “cold” laser. This treatment is more likely to be used when blood vessel growth is limited to a compact area in your eye, away from the center of the macula, that can be easily targeted with the laser. Even so, laser treatment also may destroy some surrounding healthy tissue. This often results in a small blind spot where the laser has scarred the retina. In some cases, vision immediately after the surgery may be worse than it was before. But the surgery may also help prevent more severe vision loss from occurring years later.

Questions to ask your eye care professional about treatment

- What is the treatment for advanced neovascular AMD?
- When will treatment start and how long will it last?
- What are the benefits of this treatment and how successful is it?
- What are the risks and side effects associated with this treatment and how has this information been gathered?
- Should I avoid certain foods, drugs, or activities while I am undergoing treatment?
- Are other treatments available?
- When should I follow up after treatment?

Loss of Vision

Coping with AMD and vision loss can be a traumatic experience. This is especially true if you have just begun to lose your vision or have low vision. Having low vision means that even with regular glasses, contact lenses, medicine, or surgery, you find everyday tasks difficult to do. Reading the mail, shopping, cooking, and writing can all seem challenging.
However, help is available. You may not be able to restore your vision, but low vision services can help you make the most of what is remaining. You can continue enjoying friends, family, hobbies, and other interests just as you always have. The key is to not delay use of these services.¹

Local agencies for resources and assistance: Alphapointe and Children’s Center for the Visually Impaired (CCVI)

¹ https://nei.nih.gov/health/maculardegen/armd_facts