

## **WHAT IS MACULAR DEGENERATION?**

Age-related macular degeneration (ARMD) is a condition in which the central portion of your retina tissue, the macula, deteriorates, causing your central vision to be blurry and distorted.

There are two major types of macular degeneration called "dry macular degeneration" and "wet macular degeneration." Both forms can cause vision loss, but the wet type is more rapid and aggressive.

To help distinguish dry from wet macular degeneration and to develop a treatment plan, your doctor may obtain a test called a fluorescein angiogram in addition to your eye examination. A small amount of dye is injected into an arm vein and special photographs are taken of your retina's blood vessels as the dye courses through them. This test can provide very important information about the severity of your problem and the best treatment approach for your eye.

In dry macular degeneration, tiny mounds of yellowish material accumulate in the retina and can damage the sensitive nerve cells. These mounds are called drusen. In many cases, the drusen only cause minor damage and result in mild vision loss. If there are many drusen, antioxidant vitamins and minerals may reduce the chance of more damage. These vitamins can be bought in drugstores and supermarkets and are sold as OcuVite or I-CAPS among other brands. If there are only a few drusen, these vitamins are of little use. Similarly, if you do not have macular degeneration, the vitamins offer no proven benefit.

In wet macular degeneration, abnormal blood vessels grow and leak under the retina. These blood vessels usually cause more severe damage to the nerve cells and can sometimes bleed. There are different types of blood vessels. Over the past few years major advances have occurred for the treatment of wet macular degeneration. New drugs such as Avastin, Lucentis, and Macugen can stop the growth of these vessels. Photodynamic therapy with Visudyne may help to make these drugs more durable in selected cases. For many patients, treatments are able to stabilize their vision. Occasionally vision can even be improved, a goal that was beyond imagination only a few years ago. For very advanced macular degeneration where the abnormal blood vessels have formed a scar, no medical or surgical treatment currently available will be helpful. However, an evaluation by a low vision specialist might help to allow you to maximize your function with whatever vision you still retain despite the damage to your retina.

## **WHAT IS DRY AGE-RELATED MACULAR DEGENERATION?**

The dry type of age-related macular degeneration (ARMD) occurs in individuals greater than 50 years of age. It is characterized by the slow accumulation of waste material underneath the macula. These small yellow deposits, called drusen, eventually merge together and damage the sensitive tissues of the retina. It is important to know that although patients with all forms of macular degeneration, including the dry type, can have vision loss in the center of the view, patients do not become completely blind from macular degeneration. The side vision is unaffected by macular degeneration.

## **WHAT CAUSES DRY AGE-RELATED MACULAR DEGENERATION?**

Although the exact cause of macular degeneration is unknown, there is a genetic tendency that emerges as a part of aging. Although anyone can develop ARMD, it is found more commonly in people with light pigmentation.

## **HOW IS AGE-RELATED MACULAR DEGENERATION DIAGNOSED?**

Several retinal diseases can be confused with age-related macular degeneration. An examination by an experienced physician can determine the nature of your condition.

## **WHAT TESTING MIGHT BE DONE?**

Computerized photographic tests such as fluorescein angiography, indocyanine green angiography, and optical coherence tomography (OCT) help in evaluating the nature and extent of damage. Home self-monitoring with an Amsler grid is often recommended to detect the earliest signs of new changes in the vision.

## **WHAT CAN MAKE AGE-RELATED MACULAR DEGENERATION WORSE?**

Studies have shown that a poor diet, smoking, and uncontrolled high blood pressure can contribute to worsening vision from macular degeneration. Smoking alone doubles the rate of vision loss!

## **ARE THERE TREATMENTS FOR DRY AGE-RELATED MACULAR DEGENERATION?**

There is no treatment to reverse damage done to the vision by dry age-related macular degeneration.

## **WHAT ABOUT EYE VITAMINS?**

The Age Related Eye Disease Study (AREDS) found a slight reduction in the rate of vision loss in some patients taking a high potency combination of vitamins and minerals. The doses are quite high and your doctor should determine whether they are right for you. Smokers must avoid the very high concentrations of beta carotene.

AREDS (nonsmokers)  
Vitamin A (beta-carotene) 28,000 IU  
Vitamin C 450 mg  
Vitamin E 400 IU  
Zinc 70 mg  
Copper 1.6 mg

## **WHAT ABOUT OTHER SUPPLEMENTS?**

Research into nutrients such as Lutein and Zeaxanthin is actively underway, but there have been no definitive conclusions. Bilberry and certain herbs are probably not helpful in this condition.

## **WHAT IS WET AGE-RELATED MACULAR DEGENERATION?**

The wet form of age-related macular degeneration (ARMD) is characterized by the development of abnormal blood vessels underneath the macula. (see illustration) These abnormal blood vessels are called choroidal neovascular (CNV) membranes and can produce tissue swelling, hemorrhage and scarring. The damage to the macula from CNV can lead to legal blindness. Many of today's modern treatments work to control CNV.

## **WHAT TESTING MIGHT BE DONE?**

Computerized photographic tests such as fluorescein angiography, indocyanine green angiography, and optical coherence tomography help to evaluate the extent of damage from wet macular degeneration.

## **WHAT CAUSES WET ARMD?**

Most research points to the role of a blood vessel forming molecule known as Vascular Endothelial Growth Factor (VEGF) as the cause of the new, damaging blood vessels that grow in wet macular degeneration.

## **WHAT ABOUT LASER TREATMENT?**

High intensity laser was the only option in the past and often left a blind spot in the treatment zone. More recently, however, a lower intensity laser has been devised which is used in conjunction with a specially formulated photoactive dye called Photodynamic Therapy (PDT). This treatment option can only help to reduce the amount of vision loss, not restore vision that has already been lost. Today, PDT is frequently used in combination with newer, injectable medications.

## **WHAT ABOUT THE INJECTIONS TO TREAT WET MACULAR DEGENERATION?**

Since VEGF is an important component in the development of wet macular degeneration, the recent development of anti-VEGF medications represents an exciting advance in the treatment of wet ARMD. Bevacizumab (Avastin) and ranibizumab (Lucentis) are two very useful drugs. Your physician will help you decide what's right for you.

## **DOES THE INJECTION HURT?**

The procedure is quick and practically pain free because your eye is treated with local anesthetic before the injection. A sterile lid speculum helps keep the eye open and an antiseptic kills any germs.

## **WILL IT HELP MY VISION?**

Most patients will hold on to the vision they have and some regain lost vision after these treatments.