

Age Related Macular Degeneration Fact Sheet

Robert I. Park, MD, Retina Specialist

Background:

- Age Related Macular Degeneration, commonly known as macular degeneration, is the leading cause of legal blindness in the western world.
- Macular degeneration can affect people as early as 40 years of age although the average age when central vision is lost is 65 years of age.
- Approximately 8 million people 55 years of age and older in the US are affected by moderate to advanced disease. (Age Related Eye Disease Study, AREDS)
- 1.3 million people are expected to develop significant vision loss in the next 5 years from the disease. (AREDS)
- Average age when central vision lost: 65 yrs
- Earliest manifestation: 40 yrs

History

- 1885, Otto Haab: Described a series of findings in the retina he called “senile macular degeneration”.
- 1967, J Donald Gass: Took the descriptions of various diseases: drusen, senile macular degeneration and senile disciform macular degeneration, and linked them into one disease process.
- Chronic degenerative or dystrophic disease primarily affecting the choriocapillaris, Bruch’s membrane, and the RPE cells of the retina. (Gass)
- **English translation: “damage to the deep retina with age”**

Disease Description

To understand macular degeneration, we must understand how the eye works. The eye essentially behaves like a camera. In a camera, light is focused onto either film or a chip (in digital cameras) to form an image. Likewise, in the eye, light is focused onto a light sensitive layer known as the retina to form an image. The most sensitive region of the retina is called the macula and with a healthy macula we are able to see things clearly and read fine print.

- Macular degeneration affects cells (called RPE cells) that feed and support the light sensitive cells (photoreceptors) in the macula. When the RPE cells are damaged, the light sensitive macular cells die and vision worsens.
- Macular degeneration is classified into two types: dry macular degeneration and wet macular degeneration.
- 85% of people with the disease have the dry type and 15% have the wet type.
- In dry macular degeneration, RPE cells slowly become diseased and die. The end stage of the disease is characterized by gradual central vision loss (over years) and legal blindness.

- In wet macular degeneration, new blood vessels grow from a deep layer of the eye called the choroid into the space under the RPE cells. The new blood vessels are fragile and leak blood and fluid causing rapid central vision loss. Left untreated, legal blindness rapidly ensues.
- While it is unusual for people to become completely blind from macular degeneration, the central vision can become so poor that they are considered legally blind.

Treatment

- Prior to 2005, treatments for wet macular degeneration resulted in only limited success.
- In 2005, a breakthrough drug, ranibizumab (trade name Lucentis, Genentech), was introduced for the treatment of wet age related macular degeneration.
- Ranibizumab stops new blood vessels from growing by attaching itself to a molecule, called VEGF, that behaves like the key in the switch that starts new blood vessel growth. When injected into the eye, ranibizumab can stop new blood vessel growth in the macula and improve vision.
- Patients often require multiple injections over the course of 1-2 years but up to 96% of patients can have stabilization of their disease (no significant worsening of vision) and up to 40% can have significant visual improvement.
- Treatment of dry macular degeneration is currently mostly preventative. Avoiding tobacco products is essential and patients are encouraged to make dietary changes that can help to prevent progression of the disease. All patients should increase their intake of green leafy vegetables, nuts, and fish or fish oil. Vitamin supplements have also been found to be helpful in some patients and patients should consult their eye care professional to see if they should be taking a supplement.

A number of promising new treatments are also in various stages of clinical development. New long acting VEGF inhibitors, implantable growth factor secreting cells, and replacement cell transplantation techniques are among the technologies being developed to treat this challenging disease. As new technologies become available, even patients with poor vision may be able to recover vision.

Symptoms of macular degeneration can include blurry vision, blind spots and the appearance of crooked lines when they should appear straight. Until we conquer this disease, patients with symptoms of vision loss or distortion should immediately seek the care of an eye care professional.