AMDF American Macular Degeneration Foundation

Macular Degeneration Treatments

Macular degeneration treatment breakthroughs inspire hope that someday we may see a cure to this disease. Promising treatments, described below, depend upon the stage of disease progression.

The treatment for early dry AMD is generally nutritional therapy, with a healthy diet high in antioxidants to support the cells of the macula.

If AMD is further advanced but still dry, supplements are prescribed, to add higher quantities of certain vitamins and minerals which may increase healthy pigments and support cell structure.

Until recently the only available treatment to seal leaking blood vessels associated with wet AMD was with a laser. The earliest treatment was Laser Photocoagulation. Between 1979 and 1994, the Macular Photocoagulation Study Group conducted a number of clinical trials that enrolled patients with CNV lesions (Choroidal Neovascularization) in one or both eyes. Each affected eye was randomly assigned to either laser treatment or observation. For eligible eyes with CNV in extrafoveal,

juxtafoveal and subfoveal locations, laser treatment reduced the risk of severe visual loss.

Laser photocoagulation was followed by Photodynamic Therapy (PDT) with Visudyne™ (a drug injected intravenously and used to help direct the laser to the affected area). Visudyne™ therapy is a two-step procedure that can be performed in a doctor's office. First, Visudyne™ is injected intravenously into the patient's arm. The drug is then activated by shining non-thermal laser light into the patient's eye. Visudyne™ therapy involves the use of a specifically-designed laser that produces the low-level, non-thermal light required to activate the drug which results in a selective destruction of the unwanted leaking vessels. The procedure seals off leaking vessels while leaving healthy ones intact and is believed to be a major improvement over previous laser treatments. In one large clinical trial, photodynamic therapy with Visudyne™ photosensitizer delayed or prevented loss of vision during at least one year follow-up in patients with predominantly classic CNV lesions. Unfortunately, even the most successful treatments do not preclude reoccurrence, making multiple treatments likely. However, the rate of vision loss may be slowed down and some sight may be preserved. It is important to understand that this drug is not a cure. At best it preserves the status quo: It will not restore vision that has already been lost.

In sum, there are three major limitations of laser photocoagulation treatments. First, not more than 10-15% of CNV lesions are small enough and sufficiently delineated by fluorescent angiography to be eligible for laser treatment. Second, even if laser treatment is initially successful, there is at least 50% chance that leakage will recur during the next two years. Many such recurrences are amenable to additional treatment if detected early, which means that patients need careful monitoring after the first treatment. Finally, at least half of patients post-treatment with sufficiently well-circumscribed CNV lesions still have some leakage beneath the center of the fovea. Laser treatment leads to immediate reduction in central vision in these patients with leakages, but with sufficient follow-up, the extent of visual loss is less in laser treated eyes than in untreated eyes. Nevertheless, these existing laser therapies are limited in their effectiveness and may also lead to scarring of the macula and additional vision loss.

Because of the limitations of laser treatment, researchers and physicians are in search of macular degeneration treatment breakthroughs, in order to maintain vision for a longer period of time without repeated laser use. They are also looking for new therapies which would be effective for all types of wet AMD.

VEGF is an acronym for vascular endothelial growth factor. Currently, the most common and effective clinical treatment for wet Age-related Macular Degeneration is anti-VEGF therapy – which is periodic intravitreal (into the eye) injection of a chemical called an "anti-VEGF." In the normal life of the human body, VEGF is a healthy molecule which supports the growth of new blood vessels. In the case of macular health, though, VEGF is unhealthy. It promotes the growth of new, weak blood vessels in the choroid layer behind the retina, and those vessels leak blood, lipids, and serum into the retinal layers. The leakage (hemorrhaging) causes scarring in the retina and kills macular cells, including photoreceptor rods and cones.

An intraocular shot of an anti-VEGF drug inhibits the formation of new blood vessels behind the retina and may keep the retina free of leakage. An injection in the eye can be a disconcerting experience, and it may take several treatments to become accustomed to the procedure. However, the shot is usually not painful because the eye has been anesthetized. The procedure takes about fifteen minutes. Usually the appointment requires an hour. The effect lasts for a month or maybe more.

Researchers report high rates of success with anti-VEGF injections, including receding blood vessels behind the retina, a far slower progression of the disease, and, in some cases, moderate gains made in vision. In some parts of the world, anti-VEGF treatments have reduced the incidence of legal blindness by 50 percent. However, they have noted that injections of even small amounts of anti-VEGF drugs could — though research is inconclusive — have an effect on vascular function in the rest of the body. Strokes and hemorrhaging are two concerns, but because cardiovascular disease is already often associated with Age-related Macular

Degeneration, any data available to date about strokes or hemorrhaging has been difficult to interpret.

Several anti-VEGF drugs are being developed to inhibit VEGF by trapping it or preventing it from binding with elements which will stimulate growth. Chemically synthesized short strands of RNA (nucleic acid) called "aptamers" prevent the binding of VEGF to its receptor. The various forms of anti-VEGF injections include ranibizumab (Lucentis, made by Genentech/Novartis), bevacizumab (off label Avastin from Genentech), and the recently Food and Drug Administration-approved aflibercept (Eylea/VEGF Trap-Eye from Regeneron/Bayer). Each of these chemicals works in a different way to inhibit blood vessel growth.

Side effects of intravetreal injections may include:

- Serious eye infection that may include eye pain, light sensitivity, vision changes.
- Increased eye pressure
- Retinal detachment
- Vitreous floaters

Consult with your retinal specialist to make certain you understand what all the side effects might be.

American Macular Degeneration Foundation
P.O. Box 515
Northampton, MA 01061-0515
413.268.7660 - Contact us
1-888-MACULAR (1-888-622-8527)

AMDF is a 501(c)(3) non-profit, publicly supported organization (Charity ID #04-3274007).
Contributions are tax deductible to the extent allowed by law.