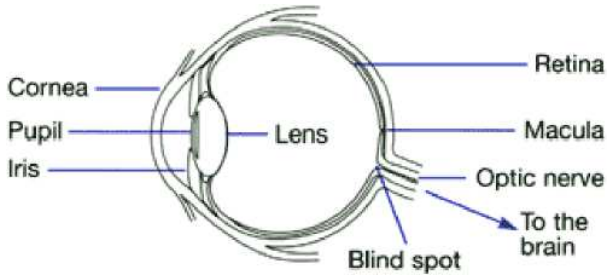
Hammond & Dummer
OPTICIANS

Understanding Age Related Macular Degeneration

What is the macula?



The eye is shaped like a ball. The pupil, close to the front, is the opening which allows light to enter the eye. Just behind the pupil is the lens which focuses the light on the retina at the back of the eye. The retina is made up of a delicate tissue which converts the light into images, and sends them to the brain. The macula is a small area at the very centre of the retina.

The macula is very important and is responsible for what we see straight in front of us, allowing us to see fine detail for activities such as reading and writing, as well as our ability to see colour.

What is macular degeneration?

Sometimes the delicate cells of the macula become damaged and stop working, and there are many different conditions which can cause this. If it occurs later in life, it is called 'age-related macular degeneration'. Unfortunately we do not yet know why this happens.

Broadly speaking, there are two types of macular degeneration, usually referred to as 'wet' and 'dry'. This is not a description of what the eye feels like, but what the ophthalmologist (eye specialist) can see when looking at the macula. Only about 10 per cent of all people with macular degeneration have the 'wet' type (all others are affected by the 'dry' type).

'Wet' macular degeneration results in a build-up of fluid under the retina. This causes bleeding and scarring which leads to sight loss. It can progress rapidly, normally within a few months, and sometimes responds to laser treatment in the early stages.

'Dry' macular degeneration usually develops slowly, often over years, and there is as yet no treatment. Many people find that the visual cells simply cease to function, like the colours fading
in an

old photograph.

Macular degeneration usually involves both eyes, although one may be affected long before the other. This sometimes makes the condition difficult to notice at first because the sight in the 'good' eye is compensating for the loss of sight in the affected eye.

You cannot wear out your sight, so do not be afraid to continue to use the 'good' eye as normal.

And now the good news

Macular degeneration is not painful, and almost never leads to total blindness. It is the most common cause of poor sight in people over 60 but very rarely leads to complete sight loss because only the central vision is affected. Macular degeneration never affects vision at the outer edges of the eye. This means that almost everyone with macular degeneration will have enough side (or peripheral) vision to get around and keep their independence.

What are the symptoms?

In the early stages your central vision may be blurred or distorted, with objects looking an unusual size or shape and straight lines appearing wavy or fuzzy. This may happen quickly or develop over several months. You may be very sensitive to light or actually see lights, shapes and colours that are not there. This may cause occasional discomfort but otherwise macular degeneration is not painful.

Because macular degeneration affects the centre of the retina, people with the advanced condition will often notice a blank patch or dark spot in the centre of their sight. This makes reading, writing and recognising small objects or faces very difficult.

What should I do if I think I have macular degeneration?

If you suspect that you may have macular degeneration but there are no sudden symptoms, you should see your optometrist (optician) who may refer you to an eye specialist. If there is a rapid, significant change in vision, then you should consult your doctor or local hospital's Accident and Emergency department immediately.

If you have macular degeneration in one eye, and you start getting sudden symptoms in your other eye, then you should go to the hospital that usually looks after you, or ask your GP to arrange an emergency appointment, as soon as possible. This will ensure that if treatment can be done you get it within a few days.

What does an eye examination involve?

Firstly there will be an assessment of your vision in both eyes. Then you will be given eye drops which enlarge your pupil so that the eye specialist can look into your eye. The drops take about 30 minutes to work although their effect may last for several hours. Your vision will become blurred for a while and your eyes will become sensitive to light, but this is nothing to worry about. Many patients with macular degeneration do not meet the visual requirements for driving and it is certainly preferable that you do not drive to the hospital for this examination. It would be helpful if someone can come with you to help you home.

What is fluorescein angiography?

In some cases your eye specialist may decide that a fluorescein angiogram will also be needed. This involves taking a rapid series of photographs of your retina with bright flashes of blue light. These photographs give an accurate map of the changes occurring in the macula and help your eye specialist to decide what is the best treatment for you.

For the angiogram you will be given a small injection of special dye in your arm which then works its way around to your eye. This is not painful but you may feel a bit sick.

There are few side effects, although some people find that they are dazzled for a while afterwards. You may also notice that the injection has left your skin with a faint yellow tinge from the fluorescein dye but this soon passes into your urine.

Your feelings

A natural reaction to being diagnosed with macular degeneration is to feel upset and angry. Other people may not understand the problem with your vision because you will not look as though you have a sight problem, and they may ask tactless questions such as 'why don't you just get better glasses?'

Adjusting to any major change in life is usually not easy, and it may help to talk, in the first instance, to your optometrist or doctor.

The
Macul
ar Disease Society has local groups. Talking about and sharing experiences can be a good way or

learning to cope with feelings and problems that other people with the same condition may have come across before.

Can I be helped to see better?

Don't be discouraged - you can be helped to see many of the things you used to by making the best use of your remaining sight. With macular degeneration, this means earning to use your side (or peripheral) vision. Ask your optometrist or doctor about how to get referred to a low vision service near you. For more information about how to make the most of your eyesight, ask for RNIB's 'See for yourself' series of leaflets.

Can macular degeneration be treated by laser?

If you have the 'wet' type of macular degeneration, certain abnormalities on the macula can sometimes be treated by laser. This is usually done as an outpatient, and although it may cause some discomfort, it is not painful. You will put your chin on a headrest and a special lens will be placed on your eye which will focus the laser onto the part of your retina which needs treatment.

Unfortunately, with most people the areas of degeneration are in the middle of the macula, at its focal point. This means that treatment cannot be given because scars produced by the laser would make central vision worse rather than better.

Laser treatment is useful for about 10 per cent of people with 'wet' type macular degeneration, and only when people have reported their symptoms early. If successful, it can prevent things getting worse, or at least delay the progression of the problem, and sometimes bring back sight that is already lost. Unfortunately, 'dry' degeneration cannot be treated by laser.

What research is going on?

There is a great deal of research that is looking into the causes of macular degeneration and how it can be treated. Two new drugs, Pegaptanib and Ranibizumab are proven to be of massive help but have yet to be licensed for us by NICE. We include an extract from the report on these drugs written by NICE

Extract of the report on Pegaptanib and Ranibizumab

The aim of therapy for people with wet AMD is to alter the progression of vision loss and improve vision if

possible. The drugs under assessment, pegaptanib and ranibizumab, prevent further development of the disease by inhibiting vascular endothelial growth factor (VEGF), a secreted protein that induces angiogenesis (the formation of new blood vessels), vascular permeability and inflammation.[9] The aim of this report is to assess the clinical effectiveness and cost-effectiveness of ranibizumab and pegaptanib for the treatment of age-related macular degeneration.

Pegaptanib (Macugen, Pfizer Ltd) is indicated for the treatment of neovascular (wet) AMD. Pegaptanib is a pegylated modified oligonucleotide that binds with high specificity and affinity to extracellular vascular endothelial growth factor (VEGF 165) inhibiting its activity. VEGF 165 is the VEGF isoform preferentially involved in pathological ocular neovascularisation. It is administered at a dose of 0.3 mg once every six weeks (9 injections per year) by intravitreal injection into the affected eye.

A UK license for ranibizumab (Lucentis, Genentech / Novartis Pharmaceutical Ltd) for the improvement and maintenance of visual acuity and function, and for the reduction of vascular leakage and retinal oedema in patients with wet AMD is expected at the end of 2006. Ranibizumab is a humanized therapeutic antibody fragment designed to bind and inhibit VEGFA. Ranibizumab is designed to block new blood vessel growth and leakiness, which lead to wet AMD disease progression and vision loss. It is administered at a dose of 0.3-0.5 mg as monthly intravitreal injections for as long as the patient benefits.

Ranibizumab and pegaptanib would be administered as soon as possible after diagnosis to minimise damage. Guidelines from the American Academy of Ophthalmology report the criteria for treatment with pegaptanib as described in the trial publications.[11]

The patients in the pegaptanib trial were required to have subfoveal sites of CNV and a range of best corrected visual acuity of 20/40 to 20/230 in the study eye and of 20/800 or better in the other eye.

Lesion sizes of not more than 12 disc areas were permitted. Patients with minimally classic or occult with no classic CNV were required to have at least one of the following: subretinal haemorrhage associated with CNV, but comprising no more than 50% of the lesion; the presence of lipid; the loss of 15 or more letters (approximately 3 lines on the study eye chart) of visual acuity during the previous 12 weeks.[12] Pegaptanib can be given in combination with PDT with verteporfin,[12] and a change in treatment regimen, for example from PDT with verteporfin to pegaptanib or vice versa may be appropriate depending on the clinical response of a given patient.

Comparators for the interventions under assessment are those suitable for patients with subfoveal wet AMD used in the NHS. These would be best supportive care, or photodynamic therapy for the subgroup of patients with classic no occult subfoveal wet AMD. Best supportive care includes provision of and training with low vision aids, information about support charities (e.g. the Macular Disease Society), registration as visually impaired or blind depending on the level of acuity, and advice about not smoking and vitamin supplementation. Photocoagulation therapy will not be included as a comparator, because although photocoagulation therapy may be considered for new or recurrent subfoveal CNV with poor visual acuity, it is rarely used as the first treatment of choice due to associated loss of vision.