

Macular Degeneration what can be done?

Age-Related Macular Degeneration (ARMD) is the leading cause of blindness in the developed world. It is more common than blindness caused by glaucoma or diabetic retinopathy. It is a progressive disease and has been considered as having an inevitable outcome of eventual loss of central vision.

As it affects elderly people most commonly, the effects on independence and quality of life are compounded. People affected eventually have extreme difficulty in reading, cooking and even watching television. Loss of the ability to see faces affects social interaction as well. Driving is well out of the question.

Traditionally optometrists and GPs have had a counselling role for these people. Optometry can make a significant improvement in quality of life with optical aids and lighting recommendations. Appropriate use of illumination and magnification can enhance existing central vision and help maintain quality of life and independence for a considerable length of time. Many optometrists specialise in this area of vision care called "Low Vision".

However recent developments in treatment and in the epidemiological study of ARMD have shown that the role in primary care is possibly more important than we ever imagined. There is strong evidence now that ARMD prevention is possible and that treatment of the 'wet' form of the disease through surgical management has some encouraging results.

ARMD is a retinal pigment epithelium (RPE) disease. The RPE fulfills three main functions in the eye. It supplies nourishment to the retina, it is involved in waste removal and is a blood barrier. Impaired RPE function can lead to drusen, atrophy and neovascularisation.

When neovascularisation is involved, the ARMD is known as the 'wet' form of the disease. Of the people who have wet ARMD, one half are severely blind (1/60 Snellen) in 2-3 years. Over two thirds have both eyes involved.

The exciting therapy for wet ARMD is called Photo-dynamic Therapy (PDT). This involves intravenous use of a photo-reactive drug called Verteporfin (Novartis) and retinal expo-

sure to the reactive wavelength of light from a laser. Verteporfin is specifically bound to neovascular tissue. The activating laser causes it to free-radicalise and the new vessels in the macula fibrose.

PDT is effective on early ARMD. PDT slows the disease significantly but there is still deterioration. However the end point is much better than no treatment. Treatment on advanced wet ARMD is not effective.

The best solution for ARMD is prevention. This is the role for primary care.


A large multi-centre study called AREDS (Age-Related Eye Disease Study) has been carried out in the USA. It followed about 4560 patients aged between 55 and 80 over a seven year period. These people ranged from no macular problems to severe ARMD.

AREDS researchers found that people at high risk of developing advanced stages of ARMD lowered their risk by about 25 percent when treated with a high-dose combination of vitamin C, vitamin E, beta-, and zinc.

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In the same high risk group (which includes people with intermediate ARMD, or advanced ARMD in one eye but not the other eye) the nutrients reduced the risk of vision loss caused by advanced ARMD by about 19 percent. For those study participants who had either no ARMD or early ARMD, the supplements did not provide any apparent benefit.

In the cataract portion of the study, researchers discovered that the same nutrients had no significant effect on the development or progression of age-related cataract.

Further studies have indicated that specific types of fat are important factors relating to risk of ARMD. Trans-fatty acids appear not to metabolise well and affect the RPE. Eating vegetable oil may cause as much as a 3x increase in risk. Omega 3, as found in fish may cause a 50% decrease in risk.

A higher dietary intake of carotenoids was associated with a lower risk for AMD. The specific carotenoids, lutein and zeaxanthin, which are primarily obtained from dark green leafy vegetables, were most strongly associated with a reduced risk for AMD. A standard serving of broccoli has 80mg of lutein.

Smoking is a significant risk factor in the development of ARMD.

Beta-carotene is also associated with lower risk of ARMD. Smokers must be cautioned not to

take beta-carotene as a supplement due to the associated increased risk of lung cancer.

As can be seen from the results mentioned here, patient education plays an important role in the prevention and management of ARMD.

- Dietary change alone can reduce the risk by 50%.
- The disease is slowed by 25-30% with zinc and antioxidants.
- Prompt specialist referral, early treatment (if applicable), visual aids and emotional support are all pivotal in ensuring most patients can retain their independence.

Some articles and web-sites of interest are:

Am J Clinical Nutrition 2001;73:209-218


Arch Ophthalmol October 2001; 119 ; 1417-1436 & 1438-1452

www.nei.nih.gov/amd/summary.htm

www.visionworksusa.com/studies.asp

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