

Age-Related Macular Degeneration

What Can Be Done?

Age-related macular degeneration (AMD) is a leading cause of vision loss in those aged 50 and older, but there are ways to help.

If things are looking blurred or straight lines appear distorted, it could be an indication of age-related macular degeneration (AMD), a common eye condition in people aged 50 years and older that can lead to irreversible central vision loss. (Fig.1) The loss of central vision could severely interfere with the ability to carry out everyday activities like reading and driving, and even impair the ability to recognise the faces of our loved ones. AMD occurs when there is damage to the macula, the centre part of the retina needed for sharp, central vision.

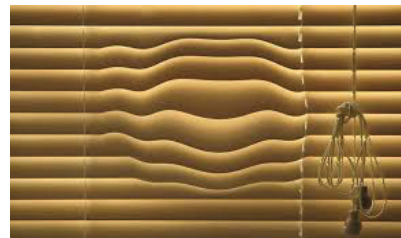


Fig.1

Types of AMD

There are two types of AMD: Dry or wet AMD. In dry AMD, waste materials produced by the retina are unable to be gotten rid of as effectively as before due to degeneration of the retina cells at the macula. This leads to accumulation of these waste materials under the retina, we call these deposits drusen. (Fig.2) As more drusen accumulate under the retina, this can lead to the death of retina cells, which results in loss of vision that is irreversible. In the earliest stages of dry AMD, there could be little or no symptoms. As it progresses, usually slowly over years, areas of blockage may develop within the central area of vision as the retinal cells further degenerate and die. These areas of blockage can become bigger over

time and coalesce to cause a large central area of blocked vision in the advanced stage of dry AMD. (Fig. 3) Once these patches of blocked vision occurs, it is irreversible. Dry AMD usually occurs in both eyes but the severity of involvement can differ between both eyes.

In wet AMD, an abnormal network of blood vessel growth beneath the macula results in leakage of blood and fluid, causing sudden severe, painless central visual loss. The peripheral vision is usually normal but there is a dense black central area of blocked vision in the affected eye. Blood and fluid under the retina causes the retina to be



Fig.3



Fig.2

detached at the macula and leads to loss of vision. (Fig. 4) If wet AMD is not treated promptly, there will eventually be a dense area of scarring that consumes the macula and leads to irreversible loss of vision. (Fig. 5)

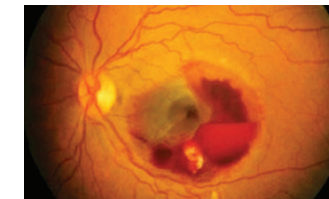


Fig.4

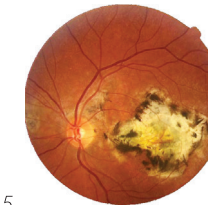


Fig.5

Risk Factors

There are many risk factors for developing dry or wet AMD. Ageing is one unmodifiable risk factor for developing AMD. Reported incidence for dry AMD is about 4.2% for those aged 60 years and below, and 32.5% for those aged 80 years and older. Genetic factors also play a part, so those with a family history of AMD run a higher risk of developing it once they reach the age of 50 years and above. Fortunately, there are many other modifiable risk factors such as smoking, excessive UV exposure during outdoor activities, a poor diet rich in fat and low in fish and vegetables, obesity and uncontrolled hypertension. Smoking and UV exposure are very important risk factors that can be minimised. If you are working or doing sports under the sun for prolonged periods of time, it is advisable to get a good pair of sunglasses that can block UV radiation. Avoiding both active and passive smoking can also reduce the chances of developing AMD. Antioxidant nutritional supplements with Lutein can also play a small role in slowing the ageing changes of the macula.

Treatment

In dry AMD, early diagnosis and modification of risk factors can slow down its progression. Individuals above the age of 50 should get an eye examination and continue to go for annual eye screenings thereafter. If you are diagnosed with dry AMD, then you can help to slow down the rate of progression of degeneration of the cells in the macula by avoiding smoking, getting good UV protection sunglasses, improving your diet, controlling your blood pressure and doing more exercise. Nutritional dietary supplements of antioxidants may be of benefit as well.

If you are diagnosed with wet AMD, meaning there is development of bleeding under the retina, prompt treatment is key to maximising visual improvement and avoiding significant permanent central vision loss. For individuals with wet AMD who do not receive treatment, vision loss is progressive and rapid. Within three years, about 70% would have developed severe visual impairment equivalent to legal blindness. The current gold standard of treatment for wet AMD involves the injection of anti-VEGF (vascular endothelial growth factor) drugs into the eye. These treatments can not

only prevent further vision loss but can also achieve visual improvement if administered early. These medications hasten the resorption of blood and limit the amount of scarring. Prior to the advent of these intravitreal injection of medications, wet AMD used to be treated with laser or photodynamic therapy. Laser was only able to prevent further worsening of vision after the onset of bleeding, but was unable to successfully achieve significant improvements in vision. This was devastating for any patient with wet AMD to know, because all patients hope for a good chance of improvement with treatment. Thankfully, with the intravitreal injections of medications, we are now able to achieve a significant increase in visual improvement with treatment, but treatment has to be instituted early before the onset of scarring. Once scarring occurs, the visual improvement with treatment is limited.

There are 3 intravitreal injections in the market, *Avastin*, *Lucentis* and *Eyelea*. *Lucentis* and *Eyelea* are the 2 drugs that are FDA approved for injection into the eye to treat wet AMD. Treatment involves an injection every month for 3 months, followed by a regime tailored to each patient based on treatment response. The vision improvement can be seen after 1 injection if treatment is sought early enough. The risks of injections are very small, and they include infection, strokes and heart attacks. For patients with no previous history of heart attacks or strokes, the risk of developing this is minimal. The injection is done in the clinic under sterile conditions after administering topical anaesthetic eye drops. The whole procedure takes about 5 minutes. To minimise the risk of infection, you will be asked to use an antibiotic eye drop for 5 days after the injection. **PRIME**



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