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AGE-RELATED MACULAR DEGENERATION

WHAT IS IT?

- Macular degeneration (AMD) is an age-related change that occurs in the macula.
- Macula is the part of the retina that allows you to see the small details and the center part of the vision.
- AMD can cause the macula to not function which may decrease detail and center vision.
- 90% of the people with AMD will develop dry AMD. 10% will develop wet AMD.
- Dry form does not demonstrate bleeding; Wet form demonstrates bleeding.
- Advanced AMD can lead to “atrophy” of the macula. In this situation, parts of the atrophied macula do not function leading to decreased vision. The extent of vision loss is dependent on the amount and location of the atrophy.
- Dry form can also progress to the wet form.
- The blood in wet macular degeneration can cause severe damage to the macula and its function leading to decreased central and detail vision.
- AMD does not affect peripheral, or side vision. One does not go completely “blind”. You will maintain side vision.
- Low vision aids can assist with some reading and daily activities.

ANALOGY

- Imagine a forest fire. If it is not stopped, then it will eventually burn the entire forest. The better that it is controlled, the more trees that we can save.
- Treating dry AMD is equivalent to helping to prevent fires in the first place
- Treating wet AMD is equivalent to pouring water over the fire. It may not stop the fire immediately, but it will help to put out the fire sooner.
- Early detection is very important: imagine if the forest fire could have been stopped when it a small brush fire.

HOW TO MONITOR?

- **Amsler grid** monitors for early changes. Look at the grid one eye at a time on a daily basis. Any changes such as wavier/blurrier lines should be relayed to the physician ASAP
- Smoking can hasten the worsening of either type of macular degeneration.
- The effect of any treatment can be decreased in smokers.

TREATMENT OF DRY AMD

- Age-related Eye Disease Study (AREDS) by the National Eye Institute showed a combination of vitamins and minerals can decrease progression to advanced macular degeneration by 25% in patients with moderate/advanced AMD.
- In patients with milder forms, normal multivitamins helped to achieve the same goals.
- AREDS formulation contains vitamin C 500 mg, vitamin E 400 IU, beta-carotene 15 mg, zinc oxide 80 mg and cupric acid 2 mg. Advise your primary care physician.
- In smokers, beta-carotene, which is contained in the AREDS formulation, has been linked to lung cancer. Therefore, formulations not containing beta-carotene are recommended.

TREATMENT OF WET AMD

- Wet macular degeneration causes permanent damage that usually can not be reversed.
- Therapy is aimed at stopping the bleeding vessels to minimize any further damage.
- As long as blood is in the macula, damage can continue to occur. Even after treatment, the resulting scar tissue can continue the damage.

Intravitreal Avastin/Lucentis Injection

- Avastin is off-label use
 - Off-label means that this medication has found additional uses after it was approved for treatment of other conditions
- Avastin and Lucentis are both used widely to treat wet AMD and help to stabilize the vision in up to 90% of patients.
- Both are considered to be safe and effective forms of treatment.
- The medication is repeated on 4-6 week basis until the bleeding stops
- Works by inhibiting VEGF (vascular endothelial growth factor) that causes formation of the abnormal vessels that bleed in wet AMD.
- The risks include and are not limited to infection, bleeding, retinal tear/detachment, loss of vision or eye.
- There is an increased risk of heart attack or stroke after prolonged use. This has been estimated from purely theoretical to 5%.

Photodynamic Therapy (“Cold” laser)

- Approved in 2001, this treatment helps to stop the bleeding vessels while minimizing damage to the healthy tissue around the bleeding vessels.
- It is less effective than Lucentis/Avastin by itself. It is sometimes used in combination with other treatments.
- A medication called Verteporfin is injected in through your arm which is concentrated in the bleeding vessels.
- The laser activates this medication thereby damaging the bleeding vessels while minimizing damage to the healthy tissue,
- The medication used (verteporfin) also makes the skin sensitive to the sun. Severe burn causing permanent damage which may require surgery may result if exposed to the sun.
- Please bring clothing items to cover any exposed skin to be worn after procedure.
- Stay indoors for 5 days after the procedure to minimize exposure to the sun.

Intravitreal Kenalog/Triessence Injection

- Kenalog/Triessence is a steroid medication injected directly into the eye.
- Helps to stop the bleeding vessels by reducing inflammation.
- Not generally used by itself to treat wet AMD.
- The risks include and are not limited to infection, bleeding, retinal tear/detachment, loss of vision or eye.

After the Treatment of Wet AMD

- No one can predict the number of injections that will be required to stop the bleeding. We will examine you with the appropriate testing to see the status of the bleeding.
- Until the bleeding stops, you will be followed every 4-6 weeks or sooner to assess the effect of treatment.
- After the injection, you may see the medication or air bubbles floating in the form of dark clouds/shadows or spheres which may interfere with normal daily activities. These will improve gradually over the next 1-2 weeks.
- After the injection, the eye will feel irritated with burning sensation and you may feel as if there is something in the eye for 3-4 days.
- Antibiotic eye drops will need to be taken 4 times per day for the next 5-7 days. Artificial lubricating tears can be used to help to reduce irritation.
- Please call if you have any questions. There is someone on call 24/7. Call especially if you begin to experience any decrease in vision, eye pain, swelling around the eye. In general, it is advised that you call for any of the listed symptoms worsen or you think are worse than they should be.