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 SCAN ME

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WILL A DRUG THAT TARGETS CD146 SLOW WET AMD?

Wet AMD involves an overgrowth of new blood vessels in the eyes. Treatments for this condition help slow the progress of the disease in many people, but they don't work for everyone. Researchers may have found a new way to treat the disease that could help. Recent studies show that a gene called CD146 is overactive in the eyes of people with wet AMD. In lab experiments, when scientists shut down that gene, new blood-vessel growth in the eyes slowed down, too. This finding could lead to new drugs that deactivate CD146 in the eyes of people with wet AMD.

SOURCE: *Science China Life Sciences*



288 MILLION

Number of people expected to have AMD—either dry or wet—worldwide by 2040.

SOURCE: BrightFocus Foundation

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1 in 10

Number of people with AMD who have the “wet” or neovascular form of the disease.

SOURCE: BrightFocus Foundation

\$255 BILLION

Estimated worldwide direct health care costs from AMD.

SOURCE: BrightFocus Foundation

22 million

Number of people in the U.S. expected to have AMD—either dry or wet—by 2050.

SOURCE: BrightFocus Foundation

ALL EYES ON AIR POLLUTION

Several factors can raise your chance of getting age-related macular degeneration (AMD), such as age, smoking, and family history. According to a new study, exposure to air pollution might also be a risk factor. Researchers kept track of 115,954 adults ages 40 to 69 with no eye problems for about 6 years. During that time, those who lived in the most polluted areas were 8% more likely to report a diagnosis of AMD than the others. Tests also revealed that people in these areas were more likely to have structural changes in their eyes that can lead to AMD.

SOURCE: *British Journal of Ophthalmology*

CHRIS CONWAY/VIA GETTY IMAGES

KEEP LIVING LIFE THROUGH YOUR EYES

TAKE CONTROL OF YOUR SIGHT WITH EYLEA.

If Wet AMD has impacted your eyes—and how you see life—fight back with EYLEA.

- EYLEA is **clinically proven to help improve vision**—which may help you read letters and see details more clearly
- EYLEA helped **maintain vision improvements for up to 4 years** with continued treatments in a clinical study

ASK A RETINA SPECIALIST ABOUT EYLEA.

INDICATIONS

EYLEA[®] (aflibercept) Injection 2 mg (0.05 mL) is a prescription medicine approved for the treatment of patients with Wet Age-related Macular Degeneration (AMD), Macular Edema following Retinal Vein Occlusion (RVO), Diabetic Macular Edema (DME), and Diabetic Retinopathy (DR).

IMPORTANT SAFETY INFORMATION

EYLEA[®] (aflibercept) Injection is a prescription medicine administered by injection into the eye. You should not use EYLEA if you have an infection in or around the eye, eye pain or redness, or known allergies to any of the ingredients in EYLEA, including aflibercept.

Injections into the eye with EYLEA can result in an infection in the eye and retinal detachment (separation of retina from back of the eye) can occur. Inflammation in the eye has been reported with the use of EYLEA.

In some patients, injections with EYLEA may cause a temporary increase in eye pressure within 1 hour of the injection. Sustained increases in eye pressure have been reported with repeated injections, and your doctor may monitor this after each injection.

There is a potential but rare risk of serious and sometimes fatal side effects, related to blood clots, leading to heart attack or stroke in patients receiving EYLEA.



#1 FDA-APPROVED treatment in its class for patients with Wet AMD*

The most common side effects reported in patients receiving EYLEA were increased redness in the eye, eye pain, cataract, vitreous (gel-like substance) detachment, vitreous floaters, moving spots in the field of vision, and increased pressure in the eye.

You may experience temporary visual changes after an EYLEA injection and associated eye exams; do not drive or use machinery until your vision recovers sufficiently.

Contact your doctor right away if you think you might be experiencing any side effects, including eye pain or redness, light sensitivity, or blurring of vision, after an injection.

For additional safety information, please talk to your doctor and see the full Prescribing Information for EYLEA.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.

Please see the Consumer Brief Summary on the adjacent page.

*IBM Truven MarketScan data: Number of injections administered, from Q4 2018 through Q3 2019; Data on File.

VISIT EYLEA.COM

Consumer Brief Summary

This summary contains risk and safety information for patients about EYLEA. It does not include all the information about EYLEA and does not take the place of talking to your eye doctor about your medical condition or treatment.

What is EYLEA?

EYLEA is a prescription medicine that works by blocking vascular endothelial growth factor (VEGF). VEGF can cause fluid to leak into the macula (the light-sensitive tissue at the back of the eye responsible for sharp central vision). Blocking VEGF helps reduce fluid from leaking into the macula.

What is EYLEA used for?

EYLEA is indicated for the treatment of patients with:

- Neovascular (Wet) Age-Related Macular Degeneration (AMD)
- Macular Edema Following Retinal Vein Occlusion (RVO)
- Diabetic Macular Edema (DME)
- Diabetic Retinopathy (DR)

How is EYLEA given?

EYLEA is an injection administered by your eye doctor into the eye. Depending on your condition, EYLEA injections are given on different schedules. Consult with your eye doctor to confirm which EYLEA schedule is appropriate for you.

Who should not use EYLEA?

Do not use EYLEA if you have an infection in or around the eye, eye pain or redness, inflammation in the eye, or are allergic to aflibercept and/or any other ingredients in EYLEA.

What is the most important information I should know about EYLEA?

- EYLEA must only be administered by a qualified eye doctor. Injection into the eye with EYLEA can result in an infection in the eye and retinal detachment (separation of retina from back of the eye) can occur. Inflammation in the eye has been reported with the use of EYLEA. If your eye becomes red, sensitive to light, painful, or develops a change in vision, seek immediate care from an eye doctor
- In some patients, injections with EYLEA may cause a temporary increase in eye pressure within 1 hour of the injection. Sustained increases in eye pressure have been reported with repeated injections, and your eye doctor may monitor this after each injection
- There is a potential but rare risk of serious and sometimes fatal side effects related to blood clots, leading to heart attack or stroke in patients receiving EYLEA
- Serious side effects related to the injection procedure with EYLEA are rare but can occur including infection inside the eye and retinal detachment
- You may experience temporary visual changes after an EYLEA injection and associated eye exams; do not drive or use machinery until your vision recovers sufficiently
- Because EYLEA is composed of large molecules, your body may react to it; therefore, there is a potential for an immune response (allergy-like) in patients treated with EYLEA

What are possible side effects of EYLEA?

EYLEA can cause serious side effects, including

- See important safety information listed under “What is the most important information I should know about EYLEA?”

The most common side effects include

- Increased redness in the eye
- Eye pain
- Cataract
- Vitreous (gel-like substance) detachment
- Vitreous floaters
- Moving spots in the field of vision
- Increased pressure in the eye

There are other possible side effects of EYLEA. For more information, ask your eye doctor.

It is important that you contact your doctor right away if you think you might be experiencing any side effects, including eye pain or redness, light sensitivity, or blurring of vision, after an injection.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.

What should I tell my eye doctor before receiving EYLEA?

- Tell your eye doctor if you have any medical conditions
- Tell your eye doctor if you are pregnant or are planning to become pregnant. It is not known if EYLEA may harm your unborn baby
- Tell your eye doctor if you are breastfeeding. It is not known if EYLEA may harm your baby. You and your eye doctor should decide whether you should be treated with EYLEA or breastfeed, but you should not do both

How is EYLEA supplied?

EYLEA is supplied in a clear, colorless to pale yellow solution. It is provided in a pre-filled glass syringe or glass vial containing the amount of product required for a single injection into the eye, which is 0.05 mL (or 2 mg of the medicine product).

Where can I learn more about EYLEA?

For a more comprehensive review of EYLEA safety and risk information, talk to your health care provider and see the full Prescribing Information at EYLEA.com.

REGENERON

Manufactured by:

Regeneron Pharmaceuticals, Inc.
777 Old Saw Mill River Road
Tarrytown, NY 10591

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based on the August 2019 EYLEA[®] (aflibercept) injection full Prescribing information.

 LISTEN TO THIS!

WAMD

101

LEARN MORE ABOUT WHAT CAUSES WET AMD, HOW IT AFFECTS YOUR EYES, AND HOW TO MANAGE IT

By Rachel Reiff Ellis

Reviewed by Alan Kozarsky, MD, WebMD Medical Reviewer

Age-related macular degeneration (AMD) is the leading cause of vision loss in adults over age 50 in the U.S. The macula is a small, densely packed area of nerve cells in the middle of your retina responsible for sharp central vision. Macular degeneration damages this bundle of cells and, along with it, your ability to see clearly.

WET VS. DRY AMD

AMD has three stages: early, intermediate, and late. Your vision isn't typically affected until you reach late-stage AMD. Late-stage AMD has two subtypes: wet (also called neovascular) and dry (also called geographic atrophy). You can have one type only or both at the same time in one or both eyes.

Dry AMD affects your vision by slowly breaking down the cells and tissues in and around your macula. In wet AMD, macula damage hap-

pens because of new, abnormal blood vessels that grow behind your retina. "The term 'wet' refers to the bleeding or leaking from this mesh of abnormal blood vessels," says Eugene Y. Shildkrot, MD, associate professor of ophthalmology and co-director of the Retina Fellowship Program at the University of Virginia School of Medicine. This fluid buildup in and under your retina causes it to swell and affect your sight.

The majority of people with late-stage AMD have the dry type. "Dry macular degeneration is by far the most common subtype, outnumbering the wet type nearly 4 to 1," says Shildkrot. Although the wet type is rarer, it accounts for the majority of cases of AMD-caused vision loss.

SYMPTOMS

The symptoms of wet AMD come on more quickly and are typically more severe than the symptoms of dry AMD. “Unlike the dry type, which tends to be slow in progression, wet macular degeneration can have a very sudden onset,” Shildkrot says. Often you’ll have a large dark or empty spot in the center of your field of vision, but you may have other effects, such as trouble seeing colors correctly, objects appearing the wrong shape or size, or blurry vision.

“You may have difficulty seeing faces or the center of a clock, or straight lines may appear warped,” says Shildkrot. If you have wet AMD in one eye, he notes, it increases the chances that the other eye will also develop it.

DIAGNOSIS

To know whether you have wet AMD, you’ll need to have a clinical exam by an eye specialist. Using a visual acuity test, your doctor can see how sharp your vision is at various distances. You may also look at an image called an Amsler grid to determine if straight lines appear wavy. Your doctor will dilate your eyes to see if there is fluid buildup under your retina.

Your doctor may also take photographs of your retina (called fundus photography), do a laser scan of the retina (an optical coherence tomography, or OCT), or look at the blood vessels of your retina with a test called an angiography. “Angiography helps us observe blood vessel leakage in real time by injecting dye through a vein in the arm that eventually reaches the

neovascular membrane,” says Shildkrot. This neovascular membrane is the mesh-like collection of abnormal blood vessels under your retina.

TREATMENT

The most common treatment is regular injections into the eye with anti-VEGF drugs. “These medications decrease the growth factors responsible for neovascular mem-





LJUBAPHOTO/VIA GETTY IMAGES

brane formation and maintenance,” Shildkrot says. Anti-VEGF drugs help stop new abnormal blood vessels from growing.

Another less common option your doctor may try in combination with anti-VEGF injections is treatment with lasers. They may suggest laser therapy, which uses a beam projected into your eye to stop new blood vessel growth, or laser

surgery with a different kind of beam that destroys abnormal blood vessels.

There is no cure for AMD, but with the right care, you may slow the progression of the disease. “Early detection and prompt treatment within a week of conversion to the ‘wet’ macular degeneration are both key to maintaining or improving your vision,” Shildkrot says.

“THE TERM ‘WET’ REFERS TO THE BLEEDING OR LEAKING FROM THIS MESH OF ABNORMAL BLOOD VESSELS.”

- Eugene Y. Shildkrot, MD

RAISED RISK

These factors increase your odds of getting wet AMD:

- + **Family history.** If a relative has or had AMD, it’s more likely you’ll get it.
- + **Race.** AMD is more common in people who are white.
- + **Smoking.** Studies show smoking cigarettes can double your risk of AMD.
- + **Genetics.** Certain gene variants, or versions, may be associated with AMD.



LIVING WITH WET AMD

MY VISION STORY

By Nancy Condon

Reviewed by Brunilda Nazario, MD,
WebMD Chief Physician Editor, Medical Affairs

Two and a half years ago at age 73, the world started getting a little blurry for me. I had been diagnosed with glaucoma almost 8 years prior, and I'd also had cataract surgery, so I thought I must just need my glasses prescription changed as a result. But my regular glaucoma scan revealed a different story.

Just before the doctor came back into the room after my scan, I overheard him say, "I can't believe it's gotten that bad so quickly." I thought they must be talking about somebody else. And then he came in and delivered the diagnosis.

I've always said that out of all the senses, vision is my favorite. I was a graphic designer and art director for 35 years. Now that I'm retired, my vocation is as a fiber

artist. Seeing fine detail is crucial to what I do—my work is a blend between painting and quilt art. So the diagnosis felt like quite a blow.

The positive news for me was that I only had it in my left eye. But in the week between seeing my ophthalmologist and the retina specialist, my thoughts spiraled. I was convinced it was definitely going to happen in my other eye, too, and I

ALEXANDRA ZYCH/VIA GETTY IMAGES

would be totally blind and dependent. The retina specialist was immediately reassuring, saying that treatment could keep things from getting worse.

I was so relieved, in part because I watched my mother deal with macular degeneration as well as Alzheimer's, and it was a terrible combination. But today's treatments can make a world of difference to stop wet AMD progression. I was able to get my first injection within a month of my diagnosis.

Since then, I've gotten monthly injections, and my doctor takes a scan to see how things look. Sometimes it's a little worse, and sometimes—like last June—it's better enough that I don't have to have an injection. That felt like a miracle.

It's been a pretty dramatic change for

me, adjusting my expectations about my vision. At night when I'm lying in bed and the lights are out, if I close my right eye and look up in the dark, I can see exactly where the damage is.

It's crucial I have good light when I sew. Light becomes your friend when you have wet AMD. And electronic readers! I love to read, and being able to change type size and lighting helps me keep that pastime in my life.

My goal now is to try to figure out ways to incorporate the way I see the world into my work as a fiber artist. I use my work as a vehicle for questioning and absorbing what it means to be human and vulnerable. I'd love to discover images that could represent my experience and evoke a response in others.



NANCY'S TIPS

Be serious about shades. Wear sunglasses outside all the time. Choose frames you like so you look forward to putting them on.

Rest on injection day. Accept that the day of your treatment is a day off. Take it easy, or better yet, take a nap.

Connect with others. Get to know your medical team. And chat with others in the waiting room—you'll often find support and tips from others who know what you're going through.



FOLLOW-UP VISITS

WHY THEY'RE IMPORTANT AND HOW TO PREPARE

By Rachel Reiff Ellis

Reviewed by Brunilda Nazario, MD,
WebMD Chief Physician Editor, Medical Affairs

When you have wet AMD, you need frequent follow-up visits with your ophthalmologist. Your doctor may suggest you have them monthly. The goals at these visits are to:

- Catch any vision changes early.
- Monitor or give you your treatment.
- Address any questions or concerns you have about your condition.

“During follow-up visits, your ophthalmologist evaluates the status of your vision and the health of your eyes,” says Purnima S. Patel, MD, spokesperson for the American Academy of Ophthalmology and ophthalmologist at Ophthalmology & Retina Associates of Georgia in Peachtree Corners.

They may do that with tests such as color photography of the inner lining of your eye or optical

coherence tomography (OCT), which uses light waves to take cross-section pictures of your retina. These images help your doctor see if your treatment is working, or if your retina shows new signs of disease progression.

“Your doctor may dilate your eyes to get the best look at your retina and its response to any treatment or changes from your previous exam,” Patel says. Often, these tests can help your doctor see signs of change in your retina before you experience new vision symptoms.

Your eyes will be sensitive to light after dilation, so it's a good idea to bring dark glasses for protection.

Patel says your doctor will also ask about other eye conditions affecting your vision health. Diseases of the heart and blood vessels can have an impact on your wet AMD progression.

You'll want to report any new or worsening vision symptoms you have, too. “Any decrease in vision, new

distortions—wavy or splotchy areas—and new blind spots may indicate worsening of disease,” Patel says.

Your doctor also needs to know if you’ve had pain, redness, or light sensitivity in the few days following a treatment. They’ll want to know if you’ve had to make adjustments to any of your daily activities because of your vision.

If your vision has gotten better since your last visit, your doctor will want to know that, too.

The most important thing is to keep showing up. “Staying on schedule is very important,” Patel says. Close monitoring of your vision health can help slow progression and help you prevent complications.





 LISTEN TO THIS!

DEVICES AND TECH BRIGHTEN THE DARK SPOTS IN AMD

THESE TOOLS CAN HELP YOU MANAGE
AGE-RELATED MACULAR DEGENERATION

By Sonya Collins

Reviewed by Alan Kozarsky, MD, WebMD Medical Reviewer

Wet age-related macular degeneration blurs or blacks out central vision. High-tech gadgets, apps, and even tweaks to your own devices can help close the gap in your eyesight.

The best approach to finding technology that will help you is to start with the settings on your personal devices, then move along to apps and software,

JOSE LUIS PELAEZ INC/VIA GETTY IMAGES



and finally—if needed—consider additional gadgets that offer more assistance—but at a higher price.

NOT YOUR GRANDMA'S MAGNIFYING GLASS

A handheld magnifying glass is no longer the tool of choice when it comes to vision-enhancing equipment. “Digital platforms on mainstream devices

offer far superior lighted magnification,” says Diane B. Whitaker, OD, division chief of vision rehabilitation and performance at Duke Eye Center in Durham, NC. “Why use a limited-capacity, old-school tool when you have a very valuable tool in your pocket or purse?”

Accessibility settings on any smartphone offer options to have

text read to you; enlarge letters and images on your screen; and increase your screen's contrast. For people who are light-sensitive, reverse contrast settings put white letters against a black background, which is easier on the eyes.

“Whether you have early- or advanced-stage macular degeneration, your two best friends are going to be magnification and contrast enhancement,” Whitaker says. You, or an occupational therapist, can make these adjustments to all your other electronics too.

APPS THAT SEE FOR YOU

Dozens of free and cheap apps can help you see the world beyond your phone's screen. Among Whitaker's favorites are Seeing AI and AIRA.

Seeing AI converts anything your phone's camera “sees” into

audio information. You could walk into a room and the app would say, “Kitchen scene, white cabinets, black-and-white tile floor.” It recognizes barcodes, so when you pick up an item in a store, the app tells you, for example, that you’re holding a specific brand’s box of cereal. It can even describe faces it sees.

AIRA connects you with a live, trained professional who can see through your phone’s camera. Let’s say you’re in a clothing store and you don’t want to buy a dry-clean-only shirt.

You would open the app and ask a real person to read the care instructions to you.

HIGH-TECH WEARABLES

OrCam MyEye works similarly to Seeing AI. It’s a discreet device that attaches to any pair of glasses. It uses artificial intelligence to convert visual stimuli into audio text. That means it can read to you, help you shop using barcodes, and describe faces and scenes.

The eSight headset uses high-speed video cameras to create and

show you an image that you can see despite your vision impairment. It works with many different types of vision loss, including age-related macular degeneration. While you’re wearing the headset, you will see the world around you.

For now, health insurance doesn’t cover wearable devices for the vision impaired. These gadgets range from about \$2,000 to \$10,000—which is why the device in your pocket may be the best place to start.



WESTEND61/VIA GETTY IMAGES