

Transcript Details

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Retinal Diseases: Safeguarding Vision Through Early Detection

Announcer:

You're listening to *Eye on Ocular Health* on ReachMD, and this episode is sponsored by Regeneron. Here's your host, Dr. Charles Turck.

Dr. Turck:

Welcome to *Eye on Ocular Health* on ReachMD. I'm Dr. Charles Turck, and joining me to discuss strategies for detecting and treating retinal diseases early is Dr. Yannis Paulus, who is the Helmut F. Stern Career Development Professor of Ophthalmology and Visual Services. He's an Assistant Professor at the Department of Ophthalmology and Visual Sciences and the Department of Biomedical Engineering. He's also the Medical Director of the Grand Blanc ACU at the University of Michigan Kellogg Eye Center. Dr. Paulus, thanks so much for joining us today.

Dr. Paulus:

My pleasure. Thank you very much, Dr. Turck, for having me.

Dr. Turck:

Well, let's start with some background, Dr. Paulus. What are some of the early symptoms of retinal diseases we should look for in our patients?

Dr. Paulus:

This is an excellent question, Dr. Turck. The most common early symptom that patients have for numerous retinal diseases is blurry vision. So most commonly, retinal diseases will strike the visual acuity of patients, and they will have either blind spots in their vision or diffuse blurriness throughout their vision as the number one sign and symptom of their early changes. Some of the other symptoms that patients can have include floaters and flashing lights or just blind spots or scotomas where they have localized areas where they have blurry vision. But those are the most common ones for numerous retinal diseases, including all of the leading causes of blindness from retinal diseases. Diabetes, macular degeneration, retinal vein occlusions, retinal detachments all manifest with those common early symptoms.

Dr. Turck:

With those symptoms in mind, let's zero in on screening strategies. Can you tell us about the available tools that can help us screen for common retinal diseases?

Dr. Paulus:

Most commonly, what patients have is they have those symptoms of blurry vision, and they present to their eye care doctor for evaluation at the eye clinic where they get a dilated eye examination to look at the back of the eye at the retina for what is taking place. There are a number of tools that are available, and they're rapidly developing in terms of ways to image the back of the eye – the retina – using various tools, such as smartphone-based imaging, such as using fundus photography, and those are the most common ones and those are rapidly evolving and rapidly developing to evaluate for retinal diseases. But most commonly, people will call their eye care provider, have a clinic appointment made, get seen for that clinic appointment, and typically have a dilated eye examination to take a look at the back of the eye and see exactly what's taking place.

Dr. Turck:

And what strategies can we use to optimize screening opportunities in our patients?

Dr. Paulus:

Well, one of the important things, and I think we've also learned it from the COVID pandemic, is that it's very important to make screening something that is easy for patients to accomplish. So, there are a lot of barriers for patients to receive care, particularly patients in underserved populations, and making those screening opportunities something that's easy for patients is something that I think healthcare is really working on. So we found with this pandemic that bringing the technology to patients and bringing the screening opportunities to patients is really the wave of the future. And we've done this through virtual visits that have become increasingly popular and increasingly common. And specifically with retinal diseases, a lot of new technologies are emerging to take those screening opportunities for patients. Almost all of us hold in our hand a way to screen for retinal diseases – your phone. So nowadays, smartphones can be a fantastic screening device for patients, and what I think in the future will be happening is people will be better able to use those smartphones that you're holding in your hands and that you use all the time to actually screen for retinal diseases through smartphone attachments to do retinal photography and so forth. But I think the key is really trying to make it easier for patients. Rather than having to call, rather than having to go to an eye doctor that might be a long distance away from your home or where you're at, bringing that technology to you so that we can actually screen you in the comfort of your living room and make it something that's easy for you to accomplish with a technology that already exists and with a technology that you have available in your hands already.

Dr. Turck:

Now, Dr. Paulus, what kind of impact can an early diagnosis have on our patients' vision?

Dr. Paulus:

Early diagnosis has a huge impact on our patients' vision. We know, for example, with macular degeneration that the number one way to determine what a patient's long-term vision will be is the visual acuity at the time that they are diagnosed with wet macular degeneration, and at the time anti-vascular endothelial growth factor therapy is initiated. If you look overwhelmingly at long-term outcomes for patients, early diagnosis makes such a difference for not just macular degeneration, but numerous diseases, including diabetes and retinal vein occlusions. As I brought up for macular degeneration, the visual acuity at the time of diagnosis of wet macular degeneration and initiation of anti-VEGF therapy makes the biggest difference. We also have the same data, for example, with retinal vein occlusion, and we know that with retinal vein occlusion, if a patient delays, in terms of seeking treatment, six months, there is permanent, long-term damage to the photoreceptors of the retina, such that the visual acuity outcomes will not be nearly as good as if prompt initiation of therapy is begun. So early diagnosis has a dramatic change on patients' outcomes in numerous retinal diseases, and so it's critical that patients come in to receive care at the time of their vision changes.

Dr. Turck:

For those just tuning, you're listening to *Eye on Ocular Health* on ReachMD. I'm Dr. Charles Turck, and I'm speaking with Dr. Yannis Paulus about how we can detect retinal diseases early on.

So Dr. Paulus, before we dive too much further into treatment, let's level-set our understanding of vision loss. What are some of the key mechanisms responsible for this condition?

Dr. Paulus:

So a lot of things can cause vision loss in retinal diseases. One of the most common things that happens with retinal diseases that can cause vision loss is swelling in the center part of your eye, or what we call macular edema. Macular edema can happen with numerous conditions, including retinal vein occlusion along with diabetes, and that swelling, or macular edema, basically as I describe it to patients, it's like looking through a dirty glass. Despite how clear everything is, before or after that, if you're looking through this dirty glass, the visual acuity and the vision of patients will not be clear at all. So swelling in the center part – macular edema – is very important for numerous diseases. There are several other things that can cause vision loss. One of those things, for example, is subretinal fluid, so something pushing on the eye from underneath the retina, for example, if someone has macular degeneration or if a retina detaches. In that case, you again have subretinal fluid that then causes blurry vision. With diabetes, you can also have vision loss from the development of new blood vessels, or neovascularization, that can then cause a tractional elevation of the retina and that can also cause vision loss. So there are a number of different ways at which you can get retinal vision loss, but the common themes of them are either swelling in the retina, something pushing on the retina and displacing it from where it normally could be, something tearing or pulling on the retina, and all of those things can significantly impact a patient's vision.

Dr. Turck:

And what role do anti-VEGF inhibitors play in counteracting these mechanisms and managing these retinal diseases?

Dr. Paulus:

Anti-vascular endothelial growth factor has really been a game-changer in the retinal field, and they really completely transform how we're able to treat patients with numerous diseases. They act in multiple ways to both help reduce vascular permeability, and thereby reduce the macular edema as we discussed that can cause a lot of the vision loss, and they also play a role in terms of helping to

remove angiogenesis or neovascularization that occurs with these diseases. So anti-VEGF inhibitors play such a critical role and actually work multifold on numerous mechanisms to help manage retinal diseases, to help remove new blood vessels, to help reduce the swelling that occurs with these diseases – the macular edema, and thereby improve patients' vision. And I can't overstate the absolute importance of anti-VEGF on our current treatment of patients with numerous diseases, from macular degeneration to diabetic retinopathy to retinal vein occlusions. They really have been a game-changer and have really brought so much vision to patients in treating these diseases.

Dr. Turck:

Now we're almost out of time for today, Dr. Paulus, but before we close, do you have any final thoughts you'd like to share with our audience?

Dr. Paulus:

Yeah, I would just like to say retinal is really an amazing, exciting field. There is so much that we can do to improve the vision and the care of patients. There is so much we can do with new technology, with new tools to screen patients and catch disease earlier. There is so much that we can do to treat patients once we diagnose and find that they have a certain disease. For example, with anti-vascular endothelial growth factor, with surgeries in various conditions, and by doing all of that, we can really improve the sight of our patients, both in the short term and in the long term, and this has been such a great and rewarding field to be a physician in and to take care of patients having the ability to transform their lives. Having someone that can't see – for example, their grandchildren – restoring that sight to them so that they can lead a healthy, productive, happy life – it makes such a difference for patients. So it's an incredibly rewarding field, and the early treatment and screening of patients is very important to that entire process.

Dr. Turck:

Well, as those final thoughts bring us to the end of today's program, I want to thank my guest, Dr. Yannis Paulus, for joining us to discuss the importance of early diagnosis and treatment of retinal diseases. Dr. Paulus, it was so great having you on the program.

Dr. Paulus:

Thank you very much. It really was a pleasure, Dr. Turck. Thank you for having me.

Announcer:

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