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Frontiers in Diabetic Macular Edema: Addressing Health Disparities and Other Barriers to Optimal Outcomes

Announcer:

Welcome to CME on ReachMD. This activity, entitled "Frontiers in Diabetic Macular Edema: Addressing Health Disparities and Other Barriers to Optimal Outcomes" is provided by Prova Education.

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Dr. Fonseca:

Diabetic macular edema and diabetic retinopathy are the 2 most common visual complication of diabetes, and diabetic retinopathy is the leading cause of vision loss among working-age adults. We know that screening works, and we have effective treatments. So why do we continue to see high rates of vision loss?

This is CME on ReachMD. I'm Dr. Vivian Fonseca, and joining me for today's discussion is Dr. Rishi Singh from Cleveland.

Dr. Singh:

Thank you for having me, Vivian.

Dr. Fonseca:

So first, we know that the prevalence of diabetes is higher among minority populations, like Native Americans, Hispanics, and African Americans and those with lower socioeconomic status. Do the rates of diabetic eye disease follow similar trends?

Dr. Singh:

Vivian, there has been multiple studies that have really evaluated racial and socioeconomic relationships with diabetic retinopathy. The National Health and Nutritional Evaluation survey data was probably the strongest data, that shows vision-threatening diabetic retinopathy is 190% higher in non-Hispanic Black individuals versus non-Hispanic White individuals. And certainly the social determinants of health and glycemic control can influence the progression of retinopathy. We're very aware that many of our inner cities, for example, are food deserts, where there's lack of nutritional ability for patients to get the right nutrition to control their diabetes, and instead they're left with options which are high glycemic in index, and unfortunately can cause progression and worsening of diabetic retinopathy. In addition we know that the anti-VEGF therapy, or vascular endothelial growth factor therapy, that we have now available for us to use in practice as ophthalmologists is applied differentially to these populations. And so this data has ultimately showed that those patients, especially, first of all, in those racial and socioeconomic situations can unfortunately suffer the consequences of diabetic retinopathy at a much greater rate, first from A) having the higher prevalence, but B) also having the lack of treatment options and conditions for these patients.

Dr. Fonseca:

And of course, these lead to poor outcomes, and these social determinants of health is something we see a lot in practice, and it's very challenging for many of these patients. They face many barriers to care: lack of health insurance, the cost of care, taking time off from work, lack of reliable transportation to come to multiple appointments. So for example, if a patient has taken the trouble to come to me

and I advise an eye exam – an eye visit, they've got to come again, and those are very challenging.

How do these barriers specifically affect the vision of patients with diabetes?

Dr. Singh:

Well, Vivian, we had the chance of evaluating patients through the IRIS database, and this stands for Intelligent Research in Sight. And it's the nation's first comprehensive eye disease clinical registry with its academy members, ophthalmologists, contributing data to it, each and every day. And they've assembled data for millions of patients now, where you can ask and answer questions related to both the most common diseases and also to the most rare conditions.

And what the data has shown is that – in a very compelling fashion – is first and foremost, that those patients who are Black come in with worse vision on entry than those patients who are White. And, in fact, Hispanic patients or Latino patients come in far worse – almost 10 letters worse than those patients who are non-Hispanic and non-Latinos. And when you look at these patients through this IRIS survey – and we've published our recent literature in the *Journal of Ophthalmology* just a few months ago with the primary author of Nisha Malhotra, who is my star medical student. We found, essentially, stratifications by not only racial stratifications on presentation, but also by insurance stratifications. Those with private insurance came in with the best visual acuity on entry. Those with Medicare came in with slightly worse visual acuity, by about 5 letters of vision. And those with Medicaid populations came in with 10 letters less of vision. Now, letters of vision is letters on the eye chart. And I think it's an important thing to remember because it's the difference between driving and not driving, potentially – 20/40 vision versus 20/50 vision is a line of vision, and that can mean the difference in driving and not driving. And that further compounds the social determinants of health, if you have lack of independence, lack ability to drive, the reliance on others for the ability to go to health care appointments. And the additional piece that we found was when you look at these patients over a 5-year period, despite the fact that they get injections for this treatment, with these anti-vascular endothelial growth factor drugs, which we give today in practice for diabetic macular edema and diabetic retinopathy, that unfortunately they still do worse than their colleagues who are treated in those other populations. And so these Latinos, as well as the Black patients, are at high risk of non-improvement, despite our best efforts in treating these conditions, from the social determinants of health but also other factors that we can discuss later in the program.

Dr. Fonseca:

For those just tuning in, this is CME on ReachMD. I'm Dr. Vivian Fonseca, and joining me today is Dr. Rishi Singh. We are discussing the issue of health disparities in diabetic macular edema and strategies for addressing barriers that many patients face.

So, Rishi, let's talk about this. We all agree that screening is essential to pick up problems early so that they can be treated, but there are not enough eye doctors to screen every patient. So when I refer patients for screening, they get an appointment after several months, and they just don't go. We've tried things like using non-mydriatic fundus imaging and using telemedicine and reading centers to give us these results, and although that led to some improvement, it's still not being used enough. I'm very excited by some new technologies. I've been reading about using artificial intelligence that would – patients can do this themselves, and the computer would recognize whether they need further care and tell them that. Some of this can be done with smartphone-based imaging, and then coupled with AI, will give patients some indication of what they should do. And there is also some talk about, you know, some people who are very low risk and very stable, maybe they could have less frequent screenings so that others can have the availability that would make it easier for widespread screening.

So let me know your thoughts on how these things can fit in with overcoming barriers that are leading to a lack of adequate recognition of diabetic macular edema and retinopathy.

Dr. Singh:

Well, Dr. Fonseca, those are excellent points. I'll add a sort of baseline foundational understanding for those who might be listening who don't know much about diabetic retinopathy and diabetic macular edema. Essentially, a lot of these conditions are asymptomatic, so while we might talk to patients in our offices, and ask them if they have visual symptoms, the vast majority don't until it's very late in the disease state. So if you foundationally understand that, you realize that these technologies we talked about just a moment ago – AI, artificial intelligence, widefield imaging, office space screening with endocrinology, and primary care – are really effective ways of screening these patients who are essentially sitting out there without knowing that they have a ticking time bomb going on. And so I really believe in the future of medicine, in order for us to expand our ability to evaluate these patients, especially with scarcity of resources in ophthalmology and optometry, that we're going to embrace these technologies and certainly use them.

To speak on a couple of them that are really promising, you mentioned artificial intelligence. This past year, actually, was the first time an artificial intelligence algorithm was ~~improved~~ approved for all of medicine. Any field in medicine, one was finally approved. And actually, it was an ophthalmology piece, which you referred to before. There's 2 companies making this piece now. They detect levels of diabetic retinopathy using a traditional camera, which is a non-mydriatic, non- eye drop camera. You can use this in your office, and

it can send an image out and have it automatically read and have a referral. And it's very reliable, highly sensitive, highly specific for these disease states. And I think we're going to see the advent of that into our practices as well.

In addition, we've seen the advent of ultrawide field imaging, which can take not the traditional 30-degree or 40-degree field of view, which is a tiny view, field of view in the retina. It's like looking at Iowa in the middle of the United States and trying to figure out what's happening in California, if you want to use that analogy. This gives you an entire picture of the entire United States in one photograph. And what that allows you to do is really detect diabetic retinopathy much more reliably than if you did not have this picture alone. And those cameras are becoming, in clinical practice, very common and routine, and so we're seeing many of those patients using those images to detect now silent diabetic retinopathy. They didn't know before they went for that examination.

And lastly, it's worth working with interdisciplinary teams, looking at patients, caregivers, community leaders to explain these social determinants of healthcare, and how we can dispel the rumors that, first of all, diabetes and diabetic eye disease is a screenable condition, but secondarily it is a treatable condition, especially given the amount of information we have now on these anti-vascular endothelial growth factor agents, which can reduce the progression of the disease significantly in these patient populations.

One of the drawbacks of our current therapies, as you may be aware, is that we have to deliver these essentially monthly or every 2 months, or maybe every 3 months, in most of our patients with diabetic eye disease. And that significant burden is to the practice, to the patient, and to the providers of this eye care. So we're looking at drugs with greater durability of action, and there's a variety being studied right now. There's drugs that are being studied as implants into the eye, which can release the drug over a very long period of time, 6 to 12 months. There's other drugs being established looking at the angiotensin-2 pathway and also VEGF inhibition, concurrently. Those drugs show a durability effect of up to 4 months, potentially. And we have even high-dose drugs, drugs that 4 and 5 times the potency of our current anti-VEGFs, to see if they'll also increase the durability over time.

Dr. Fonseca:

Thank you. You know, you mentioned multidisciplinary care and patient education. These are very important components of general diabetes care anyway, and we should be getting into this topic a little bit more than we traditionally have and educate patients about the lack of symptoms of eye disease early. And educating people that if they did this right, they may never have to face blindness. It's very important, so we should be expanding on the capabilities that you've described when we educate our patients.

In our last few minutes, let's make sure our listeners are really hearing us. What's your take-home message for our audience today?

Dr. Singh:

Well, Dr. Fonseca, I want to let everyone know at home that first of all, diabetes and diabetic eye disease is commonplace, and that it's important for people to understand that yearly screening is a very, very important task for any diabetic patient to undergo, because the symptoms are just not there early in the disease state, to prevent the long-term vision consequences. The second thing I can tell any of your audience members today, is that as a retinal specialist, that I can assure the vast majority – 90% or more of patients with diabetes – that they will not lose vision so long as they come to see somebody like me, a retina specialist or an ophthalmologist, or even an optometrist for routine eye examinations where they can be referred, evaluated, and then treated with these transformative drugs in our practices. So I really want to bring a level of hope, hopefully through this conversation, to those people who are listening at home.

Dr. Fonseca:

That's really very helpful Rishi. Let me add a take-home message myself, and that's to my colleagues who are running diabetes clinics, people in primary care, who need to keep abreast of these developments and understand there's so much more that the ophthalmologists can do for patients, and to maybe make sure that patients are screened, by allowing people like you to focus on the treatment by improving the screening, improving screening rates particularly in socioeconomically challenged patient populations by using the technologies that are becoming available. And appropriate action can be taken very early because the results we are seeing from clinical trials with these treatments are really very good. And we also need to learn about these treatments because it needs to be incorporated within our overall plan of care with the patients. And having a discussion with them. I think with good education we should be able to get more people screened and more people treated.

Well, that's all the time we have today. I'd like to thank our audience for listening in, and thank you, Rishi, for joining me and sharing your valuable insights. It was a pleasure speaking with you.

Dr. Singh:

Thank you for having me, Vivian. It's nice to chat with you again.

Announcer:

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