Eyes & Neurodegenerative Diseases: An Integrative View Transcript

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Introduction and Guest Welcome

Welcome to the Parkinson's Solutions Summit. I'm your host, Dr. Ken Sharlin. I hope you've been enjoying the interviews we've had so far. We've had some terrific folks, and I am extremely excited today to welcome Dr.

Rudrani Banik. She is a board certified MD ophthalmologist and is fellowship trained in neuro ophthalmology. Those are some big words that we're going to talk about with all that means.

That's a very specialized field within neurology and ophthalmology and one that I often refer to clinically when I need help in that area. So without further ado, Dr. Banik, welcome to the Parkinson's Solutions Summit.

Well, thank you so much, Dr. Sharlin, for having me. It's really a pleasure to be here. Dr. Banik Tell the audience a little bit about yourself, about your passion for helping people with ideas, diseases, and particularly neuro ophthalmology.

What has your journey been like? How did how did you get to do what you do? Sure. So it all goes back to even before medical school. I was, you know, kind of I knew I would be going to medical school.

So I was investigating some different fields. I would shadowed different doctors. I shadowed a pediatrician, I shadowed a primary care doctor, psychiatry, and then one of out of my family friends was doing his ophthalmology residency.

Dr. Banik's Path to Neuro-Ophthalmology

So he said, Why don't you come and shadow me for a day? And I was like, Oh, I don't know about the eye, you know, I'm not really sure about that. So I was a little bit crazy about that.

But I said, Okay, fine, I'll come and spend a day with you. And that one day really changed my life. I you know, I followed him in the operating room.

I saw him. Had cataract surgery. I saw him do surgeries on children who had crossed eye strabismus. And then I saw him in the clinic He was taking care of older people, younger people, a mix of different ethnicities.

And I said, You know what? I love this field. The eye is fascinating. And I think also what I realized was, you know, hearing him talk to his patients, he had the ability to restore people's function by giving them back their eyesight.

And I thought that was so amazing, such a gift to be able to restore someone's vision. So I wanted to do that. So that's how I got into ophthalmology.

But even in medical school, I kept an open mind. I sort of delved into other fields and I also loved neurology. It was fascinating to me, the pathways, how the brain works and how you can make a diagnosis based off of the art of the exam and then see that, you know, the the anatomical basis of that, you know, maybe on an MRI or CAT scan.

So I fell in love with neurology. So then it was at a crossroads. What do I do? Do I do ophthalmology or neurology? So I decided to do ophthalmology because of the technical aspect of things.

I loved working with my hands, being able to do surgeries, but neurology was always kind of in the back of my mind in terms of my interest. And so when it came time to decide on further training, doing a fellowship, I said, You know what?

I'm just going to do neuro ophthalmology because it really blends both of these fields so well. And now, you know, I

am just so fortunate to be able to do what I do practicing as indoor ophthalmologist because it really is the best of both worlds. Wow.

And as I understand it, your journey has gone beyond the traditions of neurology and ophthalmology to explore the impact of things like food as medicine.

You've written a book about Beyond Carrots. Yes, absolutely. So, you know, when I began my career under ophthalmology, I was an academic medicine, and I did that for about 15 years.

And I thought that's what I would be doing. I would be doing only neuro ophthalmology. But I, I encountered a health issue of my own, which was chronic migraine.

And, you know, I began I, too, have daily headaches, really horrible, debilitating headaches. And I tried all the medications out there on the market and nothing was helping me.

And, you know, after about three or four years of having a daily migraine headache, I said, you know, I have to find a different solution. And that's when I stumbled across integrative and functional medicine.

And before I had my own health issues, I'd never even heard of these fields of medicine. It was never really taught in medical school the importance of nutrition and the importance of lifestyle.

But I was intrigued and said, You know what? I have to do something for my own health. So I started. To. Take some training in functional medicine. I started to do certification in it, and I started to implement what I learned from my own, you know, life, life and my own dietary choices.

You know what I was eating, what I was choosing to do, my habits. And I implemented those. And finally I started to feel better and I said, Wow, this is so incredible that this made such an impact in my own health journey.

So instead of having had 30 days a month, I went down to having headaches maybe, you know, for five days a month, which is really, you know, a huge improvement in my quality of life.

And then once I start studying the benefits for myself, I started to implement some of these changes for my patients.

Food as Medicine and Functional Medicine

And that's really when I saw the magic starting to happen, when, you know, I would recommend to my patients each dietary changes and their health would start to turn around.

I saw patients who came to me with double vision, for example, from diabetes or high blood pressure related issues, and I told them about these changes and once they implemented them, some of them were even even able to get off of their blood pressure medications, off of their diabetic medications.

And I said, you know what? This is what I want to do. I want to integrate all of these things I've learned from functional and integrative medicine into my routine care of patients.

And so that's what I do now. I really do bring together the best of these two different worlds, which really should be taught earlier in training. We should all be taught about these approaches to health because they are the foundation to achieving optimal health.

That is wonderful. Now there's an old expression, The eye is the window to the soul, right? And from my learning, the eye is not just the window to the soul, but it's really a window to understanding its many diseases, many chronic diseases is kind of a microcosm, is it not?

Why is it What can we learn from the eye? So the eye is so intimately connected to all of our organ systems? You

know, you may think, Oh, it's a small organ, it works in isolation, but it doesn't.

First and foremost, it's a direct extension of the brain. And so it's part of our central nervous system. And there are so many conditions that are neurologic conditions we can diagnose through an eye exam.

Beyond that, there are many other conditions we can diagnose through an eye exam. I mentioned earlier diabetes, high blood pressure. So there are countless patients I've diagnosed with both of those conditions simply through an eye exam.

And some of those findings on the eye exam are asymptomatic. So you may not even know that you have early diabetic retinopathy unless you go to the doctor, the eye doctor, and get a dilated exam.

So it can be really important in the diagnosis of conditions. And then there are other conditions. There are autoimmune conditions that can be diagnosed based on an eye exam.

So really, you mentioned earlier that the eye is a window trial. So it really is a window to our general health. And I think I counted once there are over 200 systemic conditions that can be diagnosed based off of an eye exam.

So it's really fascinating. It is truly a window into how how our all of our organ systems are doing. Now. I'm wondering what are some of the eye conditions that can affect people with Parkinson's disease?

So there are many and I like to group them into five categories and we can go through each of them and talk a little bit about, you know, what are the symptoms, what are the findings, maybe what are some of the treatments that can be used.

So the first thing I would start with is Dry Eye and Black Friday's. So we kind of combine them together. So many people with Parkinson's and Parkinsonian type conditions have dry eye and they're at their various reasons for why one may have dry eye.

I with Parkinson's. The most common reason is because there's a decreased blink rate. So we know that people with Parkinson's have slow movements bradycardia and in terms of their eyes, they they blink less.

So normally an individual would blink about 15 to 20 times a minute. People with Parkinson's probably blink about five times a minute. So when they don't blink as much, they're not lubricating their eyes.

You know, when we blanket kind of spreads, the tears over our cornea helps to lubricate. We're just not lubricating enough. And when we blink less and also the tears start to evaporate when we're not blinking enough.

So there you know, that all goes together. Those two reasons for having dry eye. Then there are so. Many. Patients that are used for Parkinson's that can also cause dryness of the eyes.

So medication induced dry eye and then blood ferritin is basically inflammation of the eyelids where there is almost like dandruff like deposits that develop on the and the margins of the eyelids where the lashes come from.

That can also lead to dryness. So there are, again, many reasons why people with Parkinson's may have dry eye. Common symptoms include include things like blurry vision burning of the eyes, a gritty sensation, or like a sandy sensation in the eyes.

So what she for these two or a few or a loved one. Has that is one of the first things to come about. And I think I would say in my practice, which is again, more bias towards neurology, neurological issues, about 90% of my patients have some form of dry eye.

So it's very, very common.

The Eye as a Window Into Systemic Health

I'm going to say with the caveat of sort of talk to your doctor first, but I'm curious, what are some of the more common medical lesions that can cause dry eyes that a Parkinson's patient might be taking?

Absolutely. Definitely. Discuss it with your doctor and also coordinate your care with your optometrist or ophthalmologist. And if there is a potential cause and effect issue, then maybe consider switching a medication if it's feasible.

I mean, I think overall, though, you know, if you need a medication to manage your Parkinson's, you need that medication. But maybe the dose could be adjusted or the timing could be adjusted, etc..

So there are things that you can do. And then separately, there are many things you can do for dry eye starting from the basics, which is just use lubricating drops, over-the-counter lubricating drops.

But in my practice, I also incorporate a lot of nutritional guidance for people who have dry eye. You know, what are some foods that they could eat or include in their diet to help support their dry eye?

And then also, what are some supplements people can take to help them with their dry eye? And then, of course, lifestyle factors which are so, so vital in in managing dry eyes.

So there are many things that are within people's control that they can address and incorporate into their life to help them with their dry eyes. Symptoms. Yeah, just specifically if folks are wondering that I, to my knowledge, the most common medications that can contribute to dry eyes that are used in Parkinson's to some extent, although I must say less and less are the anticholinergic drugs.

But try Hetzel, Benadryl, Artane, that kind of thing could gentle. And they're also used in psychiatric disorders to some extent, although I would say in general, with the growth of the available pharmacological interventions for Parkinson's and the realization that this particular class of drugs and have some unwanted side effects for sure, I would say the trend is moving away from using these drugs in general, although would you agree they'd find their way in in other ways?

That is very concerning to me as a more holistic neurologist. For example, sleep, of course, is a huge problem in general for our society, and the availability of over-the-counter sleep aids is, you know, ubiquitous.

And too often these sleep aids are utilizing antihistamine drugs. But these antihistamine drugs, by the way, histamine is the neurotransmitter of wakefulness.

So when we use an anti histamine, we're blocking the neurotransmitter of wakefulness. But drugs have more than one pharmacological target. And often these antihistamine drugs are also anticholinergic.

And so we're talking about things like diphenhydramine or Benadryl. And if used over and over and over again, there can be some potentially very serious consequences.

And even I'm sure if you've seen over the many years of training and practice, occasionally someone can take just a single dose of an anticholinergic drug and end up in the hospital in a delirium state.

So while we're certainly, again not saying, hey, look at your drug labels, your bottles, and we don't want anyone stopping their medication, that's definitely a talk with your doctor.

It's just an awareness that that class in particular can have a pretty profound effect on the eyes and the brain.

Dry Eye in Parkinson's Disease

And so glad you brought that up, Dr. Sharlin, because many people take over-the-counter drugs. The antihistamines you mentioned for allergies also, and they may not be realizing that what they're taking for their allergies is actually contributing to their visual issues, their dry eyes.

So it is really important every time you go to see an eye doctor, they. Take your list of medications with you. And if there is a finding on your exam, your eye exam, share that you know, share that list and ask, could any of my medications be contributing to some of the visual issues that I'm having?

Some of the anticholinergics can also lead to blurry vision. It can affect our powers of accommodation. So it may make it more difficult to read. And so, again, all of these symptoms may actually be if you're thinking about what's the root cause of something, you may have an underlying medical condition that's the root cause of something, but you may also have a medication that's the root cause of some of your symptoms.

So definitely think about this and some time. So you have to be your own detective and bring up these issues with your provider and have a discussion about it.

Wonderful. Now, when I think of Parkinson's in the eyes as a neurologist, I also think about eye movement abnormalities. Can you talk a little bit about that?

Sure. So Parkinson's can certainly affect our eye movements in several different ways. The most common symptom that many people with Parkinson's have is that they have trouble reading.

And the reason why I movements are involved here with trouble reading is that when we look at distance or eyes or basically parallel, they're straight.

But when we read our eyes slightly, turn in a little bit. And this sense of. Convergence. Really do do this. It's part of our normal physiology, our training a little bit so we can read and have depth of field when we're reading now, people with Parkinson's, they begin to lose that ability to converge their eyes.

That's the medical term, which is convergence. They lose that ability. So instead of our eyes turning in when we're reading people with Parkinson's, their eyes may start to drift out.

And this is a condition called convergence insufficiency, which is highly, highly common in people with reading issues with Parkinson's. So it may make it very difficult to focus when reading, but also sometimes it can lead to double vision when reading.

So instead of seeing a single word or single letter, you see overlapping letters, overlapping words. And typically the duplication is horizontal. So the words are kind of shifting in and out, causing totally as opposed to vertically.

That tends not to happen so much with Parkinson's. It's more of the horizontal shifting that people say they notice or they may report. Now, what can you do for that?

Well, what I typically recommend for patients, if they have a mild convergence insufficiency, is that they do some exercises and they're very simple exercises one can do.

They're called pencil push ups. And I don't know if you've heard about this before, Dr. Sharlin, Very simple, but basically you take a pen or pencil, so I'll just mimic it with my finger.

You look at the tip of that pen or pencil, and you hold it at arm's length, and then slowly you bring that tip. Closer to your. Nose. And at some point that tip will start to get blurry.

And then at some point, that tip will actually split into two. It'll start to look double to you. And that's basically where you want to stop. When it starts to split into two images, you hold it and really try to focus it back to single.

So when it starts to become double, that means your eyes are starting to diverge. They're they're moving outwards. So you want to try to really try to strengthen that those muscles to keep it single and basically hold it for about 10 seconds.

And anything can. You bring it slowly closer to your nose possible. Now when we're young, children, for example,

can get almost to the tip of their nose and keep single.

But most adults will probably get about three or four inches away from their nose. And that's the goal. Now, some people with convergence insufficiency, they're only able to hold it up to here and then the image starts to split.

So again, every day practice this exercise and try to get as close to your nose as possible with the goal being about three or four inches from your nose.

And that will help a lot when you're reading. If that is not sufficient. Let's see, you've been trying these convergence pencil push up exercises. It's still not really working.

You're still seeing double. Then go visit your eye doctor. And sometimes what we can do is we can put a prism inside your glasses and the prism will help to help you to keep the images single.

Instead of seeing double. So that's a great alternative for convergence insufficiency. If that doesn't work, then sometimes, and this is in the most extreme of cases, a surgery may be required to help the eyes converge a little bit, but that's again, very rare that we have to we have to include that type of an intervention in our treatment. So now when we think about neurodegenerative Parkinsonism as a whole, there are some distinguishing eye movement features that may swing the pendulum more toward a condition that's not Parkinson's disease, but related to Parkinson's.

I'm thinking of the multiple system. Atrophy is, of course, can you kind of help folks understand why we as neurologists and neuro optimal just look at eye movement when we're evaluating our patients with Parkinsonism and what we'll see.

Yeah, absolutely.

Eye Movement Problems and Reading Difficulty

And sometimes the eye movement exam can help guide us in one direction or another or perhaps something else. You mentioned multi-system atrophy, but there's another condition which is Parkinsonian, which is progressive Supranuclear Palsy or PSP.

And sometimes the eye exam can help us distinguish between these various. Kinds of sound was. So the. Other thing. The other two things in addition to divergence we look at is how do the eyes track?

So we do a test called pursuit and we basically give the see how the patient tracks that target moving very, very slowly across their vision. So normally when one is tracking, usually it's a smooth movement, but oftentimes in Parkinson's, it's almost like a jerky type of movement, like what we call a cog wheel pursuit or psychotic pursuit.

So if we see that where it's not moving smoothly, it's moving like this, we may think more. This could be Parkinson's disease or multi-system atrophy can also cause sort of a jerky type of pursuit movement.

The other thing we check is seconds. Seconds are fast eye movement. So in contrast to pursuits which are slow movements, seconds are fast moving. So we have the patient look to the to a target in their periphery to another target.

So we see how accurately they're able to move their eyes to that target. So again, that's called a second. And sometimes in multi-system atrophy that second may be insufficient.

So instead of getting right to the. Target. It may look slightly off the target. And then after we. Fix, fixate. To that target. So an undershooting. Second is what we call it.

So we look for that on the eye exam and it can be very, very held. Sometimes patients trouble if they're following a moving object or maybe they're in a car and they're having really a lot of disorientation when they're in a car

because they're having trouble with their moving vehicles or other targets that they're trying to look at.

So this may explain a lot of their symptoms in progressive Supranuclear Palsy or PSP, the condition I mentioned earlier, usually vertical movements are affected first in contrast to Parkinson's and MSA, where horizontal movements tend to get affected first in PSP, vertical movements are slowed, so patients may have a lot of trouble looking down.

For example, they have trouble breathing or if they're trying to eat a meal, they have trouble looking down to see their food. And oftentimes they may miss if they try to work something, they may miss the food on their plate or it may end up on the floor because they are not able to look down very well. So this is a very special.

Things we look for on an eye decrement PSP and some of them are slightly subtle, so you may have to see a neuro ophthalmologist, perhaps a general ophthalmologist may not be so tuned in with some of these subtle changes.

So if you have some of these issues you're having, some of these symptoms, definitely try to get in to see another ophthalmologist. Another symptom that can happen with relation to eye movements is what we call square wave jerks, where the eyes, instead of looking at something and being focused on it, the eyes tend to veer off a little bit and then veer back.

So what we may see on an eye exam are these very, very fine movements. It's different from something else called nystagmus. These are very fine horizontal movements that go off target and then back to Target off target, and then back to Target.

So again, square wave tricks can be seen in mainly an MSA, but they can also sometimes be seen in Parkinson's disease as well. That's fascinating. I want to ask you, you've trained through the Institute for Functional Medicine, I believe, and as did I, and there's a series of lectures that's given routinely about the nutritional physical examination.

And a big part of that is the eyes. So I'm just curious if you use some of that in your practice, if you notice changes in the eyes that you attribute to nutrient specific nutrient imbalances.

So I've I've definitely attended those lectures. I have not found them to correlate as much as specific neurologic basis of disorders. So I have not found that there are specific nutritional deficiencies, for example, that may be associated with abnormalities in pursuit or abnormalities in seconds or square wave jerks.

It's more so the underlying neurologic condition that tends to cause some of these issues. And the reason I say that is because I always use nutritionist part of my treatment protocols in my patients.

So I do treat, you know, if they have a certain B to B B vitamin deficiencies, then I do recommend certain supplementation or including foods with B vitamins or if they have a magnesium deficiency, I do recommend magnesium foods, rich foods or supplementation.

I have definitely heard from my patients that some of their other symptoms to improve, for example, spasticity or neuropathic pain or or cramping fatigue.

But I have not seen changes on their eye exam when we replenish those nutrients. So I guess my point is that after nutritional treatment or supplementation, I have not seen those eye exam.

I motor exam changes reverse. So that's why I am saying I have not seen a benefit when using those types of nutritional treatments interventions for my patients with some of these issues.

It's unfortunate. You know, you would hope that people. Would with these. Improvement issues, but I have not experienced that.

Distinguishing Parkinsonism Through Eye Exams

I don't use that nutritional eye exam much myself in my practice, but I know that certain nutrient imbalances can present with specific findings in and around the eye, with the little lids, the eye itself and so forth.

So sometimes it can be a clue like a you might want to get this checked because very often when I see this, it can suggest that you have a specific nutrient imbalance.

But I agree. And we know that there is one when there is one nutrient that is in doubt cause I would change this item. So we can certainly diagnose vitamin A deficiency through looking at the ocular surface, many people with vitamin H have a deficiency, also have dry eye.

So that is one vitamin that I definitely tested for and supplemented with for Bennett with benefits that I've seen. So it is you know, it's important to think about the nutritional status of the eye.

The other thing that I always ask my patients about in terms of their diet and sometimes I do terms for as well, are the omegas. So the ratio between omega 3 to 6 and I definitely have found that when patients have a improved rate and improved ratio, so normally the ratio we would say is anywhere from four, you know, omega 6 to 3 ratios, 4 to 1.

Sometimes they have a much higher ratio of ratios. For example, to omega it take to try to normalize that ratio, because when that ratio is normalized, I have seen benefits in dry eye also in in some issues with contrast sensitivity because we do need omega three for our retinal health.

So I've definitely had patients there make a ratio and notice that their the quality of their vision is better or their night vision is better. So it is something to consider in that respect as well.

Yeah. Now as as a neurologist, sometimes I see patients who've maybe started with the at the margins and they said, go see the neurologist first or maybe I might say as a neurologist can see the ophthalmologists might that what I'm getting to is that the eyes essentially are the receivers of light and the translators of that light information into electrical and chemical information that then the brain can understand.

But all of that is ultimately interpreted in the visual cortex of the brain. And then signals are, of course, sent out to other association areas. So we can maybe associate the, you know, what we see with the knowledge of what that is and how it smells and how it tastes and so on and so forth.

But I'm just wondering, just can you offer the the folks watching this any clues that if they're experiencing a visual symptom, that it may not always be the eyes themselves?

What what things should we be thinking about that maybe that's not your eyes, but it's your brain. Yeah. Yeah. So definitely we we the connection between the eye and the brain is so intricate and complex, but there are certain things that one should watch out for and I would say the main thing is loss of peripheral vision.

So if you're in the back at our. Maybe sighted or your or on one side, that could be a brain issue. And there are people who notice that they come in.

We do a test called a visual field test. It is that formally evaluate their peripheral vision, their peripheral visual field, and we find a deficit. And that can be caused by something, for example, like a stroke in the in the brain, in the visual cortex of the brain, or some of the associate visual association pathways of the brain, the temporal lobe or the parietal lobe or there could be something more serious, for example.

An aneurysm or a tumor. So there are. Many patients. That I've diagnosed with. For example, the pituitary tumor. Can cause loss. Of peripheral vision.

So that's something, Doctor, And they can do the visual field test. It's a very relatively straightforward test to do. A

lot of patients don't like doing the test, but it is very important.

It gives us a lot of clinical information and helps us to localize where the brain, the problem may be. Other things that can be, you know, a brain issue are, for example, loss of color, vision, loss of contrast.

Sometimes it's not the eye that's the problem. It's actually the brain that's the problem because the brain is not able to process the information supplied by the eyes.

So there could be cerebral causes of these issues. And again, the same types of conditions may cause some of these changes in color perception or contrast.

Again, the top things would be strokes, tumors, aneurysms. So it's important to, you know, if you're having any of these symptoms, share them with your doctor, your eye doctor.

So if necessary, they may refer you to a neurologist or two in her ophthalmologist to further investigate. Sometimes people have trouble reading. For example, it's not that they can't see the words, it's not that they can't process the words or they're missing part of their vision.

Nutrition, Lifestyle, and Integrative Eye Care

So, you know, they can only see the left half and they're missing the write off. So all of these types of symptoms do need to be investigated further with either a neuropathic exam or a neurologic exam and possibly even some imaging like an MRI, to really find out what is the cause of this to make sure nothing more serious is going on.

Yes, I'm a big fan of Dr. Oliver Sax's writing, and so it was the book The Man Who Mistook His Wife for a Hat that inspired me to become a neurologist that he has, and that is not I related at all, of course.

But he has written a little bit more specifically about the visual cortex and some of his insights into human existence. I mean, ultimately that's what he was writing about is the human journey.

I'm just curious, We've talked about nutrition and this is critical to eHealth. What are some of the other integrative approaches to managing these issues that we see in conjunction with neurological disease?

So in my practice, I definitely use nutrition as the foundation, but also lifestyle is very important. So I asked the patient, you know, how much sleep are they getting, How much movement do they have in their day?

I try to stay away from the word exercise because I know some patients are intimidated by the word exercise. So movement, are they walking? Are they stretching or are they sitting all day?

These are important. And then what are their stressors? And I think that's perhaps one of the the elephant in the room when it comes to a lot of neurologic disorders is that when people are stressed from well.

For the cause, it. Maybe their neurologic symptoms can. I talked to them about mindfulness. I know you recently had an interview about mindfulness as well.

So so these are all topics. I think that most providers may not broach with the patients or they they may not ask about. So I think it's important to put it all together.

So your nutrition, your sleep habits, healthy sleep habits, blue light exposure, that's another, especially when it comes to issues, how often are they on screens later in the day?

So yes, we're all on screens for the majority of the day, but particularly towards the evening after the sun has set. Could that excess screen time in the evening be linked to their sleep issues?

Is it keeping them up? Is it causing their brain to race? Is it causing more stress in their life? So I talked to them

about that. And then, of course, I also use sometimes botanicals and sometimes even supplements, depending on what the issues are to try to optimize one's vision as well as their brain health.

So I think it all comes together. It's not just a single magic bullet or, you know, there's there's no magic cure. It's really addressing all of these foundational aspects of health that will improve your risk, support, your eye health, as well as your neurologic health.

It's really important to think of it as a whole, integrated system, not just as individual organs. Oh, yes. So some people say that. Sharlin, should I take this supplement?

Should I take that supplement? I say most of the time we measure, we determine what your imbalances are. If they're significant, let's use a supplement to raise those levels up more aggressively.

But we're always thinking about food as well, yet we can't measure botanical levels. I'm just curious, one or two botanicals that you find are frequent go tos in your toolbox.

So I love Rosemary. Rosemary has a lot of data behind it in terms of its benefit for cognitive health. And there's also some emerging science using Rosemary for retinal health as well.

So that's one of my go tos. And people can use it in cooking, They can use it, you know, as part of their natural, you know, you know, intake. But also they could use it as an oil rosemary oil topically or they could take a supplement with rosemary in it.

Rosemary Extract the other phytonutrients, I would say that oftentimes are neglected when it comes to eye health and brain health are the macular carotenoids.

And we can measure these. We can we typically don't, you know, routinely unless it's a clinical study. But the macular carotenoids are pigmented nutrients.

They're part of the Carotenoid family. So relatives of vitamin A and beta carotene, but they are critical for eye health as well as brain health. So the specific macular carotenoids that that I always use in my patients are lutein and zeaxanthin.

Now, they're a mouthful. They're hard to remember, hard to pronounce, but these are yellow pigmented molecules that are we can't our bodies can't make them.

So we need to get them from diet. They get absorbed by the body. They get preferentially deposited in the macula in the back of the eye. The macula is the part of their retina that gives us our 20/20 vision.

So to have 20/20 vision, you need to have sufficient levels of lutein and zeaxanthin. And what is pigmented compounds do is they're really phenomenal.

They act as our natural blue light filters and UV filters. So when you're out in the sun, these pigments help absorb those harmful rays and neutralize them.

Same. They do the same for blue light. So if you're in if you have a lot of UV exposure, if you have a lot of blue light exposure, definitely consider eating lots of foods rich in lutein and zeaxanthin foods such as leafy greens, spinach, kale users, excellent sources, but also egg yolk is a wonderful source of lutein and zeaxanthin.

Supplements, Website, and Closing Remarks

There are even some herbs and spices that are rich sources of lutein and zeaxanthin. For example, cilantro, parsley, paprika. These are all they all have high, high levels of lutein and zeaxanthin.

So colorful foods, also yellow and orange bell peppers, they will not only benefit your eye health, but they will also

benefit your cognitive health. So there are many published side studies looking at these two carotenoids and their benefits for memory, for cognition, for sleep also.

So there's a lot of benefits that I think overlooked. So certainly consider including them in in your diet and maybe supplementing if you think that you're not getting enough.

I'll just share with you some some data in terms of how much do we need. So we we need about 6.5 milligrams of lutein in our diet for our eye Health. We probably need more for our overall health.

Overall health, maybe ten milligrams a day. Most people on a Western diet probably only are getting 1 to 2 milligrams of lutein. So most of us are probably deficient in it.

So again, try to boost your intake, but also take a supplement. If you think that your intake is not sufficient. Now you are seeing patients. Dr. Banik If someone wanted to come and see you at your clinic, can they do that? Can they make an appointment?

Yes, I do see patients. My practice is based in New York City and I also do offer telemedicine visits. However, based off of state laws. I'm only licensed in New York State, so I can see you through telemedicine.

If you're in New York State at the time of the visit. So that's an option as well. And you have a website shop RudraniBanikMD.com Tell me what I'd find at that website and what are your some of your recommendations there?

So on my general website which is my full name address RudraniBanikMD.com basically it shares a lot of great information there blogs on there about vision health, brain health migraine as well because I have a particular interest in migraine that the shop page on my website is for my supplement.

So if anyone is interested in some of the supplements I've curated for my health and brain health, they can take a look at that. I have currently five five different products.

One is a multi specifically curated for Vision health. One is a specific, I hope supplement that has lutein and a couple of other carotenoids that are really important for vision health.

It also has Rosemary in it as well, which we were talking about earlier. Then I have an Omega, I have a probiotic and I have a separate supplement for migraine as well.

So please take a look at that. If you're interested in any anything, then my books are on the website as well. So I have my book on nutrition called Beyond Carrots and I have a Beyond Carrots cookbook.

That's a companion to the main book. Excellent. Well, Dr. Rudrani Banik, Rudy Banik, thank you so much for participating today in the Parkinson's Solutions Summit.

I'm going to encourage the folks watching this to check out your website and your Shopify store for your excellent supplements and really take care of your eyes, because when you're taking care of your eyes, you're taking care of your brain, your heart, your whole body, your well-being.

It's been a pleasure to visit with you today. Thank you so much. Dr. Sharlin. It's been it's been my pleasure. Thank you. Again.