



**Live Well Today Webinar Series:
Constipation and the Gut**
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Davis Phinney Foundation

Jackie Hanson (Education Content Associate, Davis Phinney Foundation):

Hello everyone. And welcome to The Parkinson's podcast. A podcast, bringing you experts from around the country to answer your questions and share their expertise on topics about Parkinson's all topics about Parkinson's. This podcast is put on by the Davis Phinney Foundation working to help you live well today with this diagnosis. My name is Jackie Hanson. I'm the Education Content Associate here at the Davis Phinney Foundation. And I'm excited to introduce our speaker today, the beloved Dr. K. Dr. K has spoken for us on many occasions and today he is presenting on constipation and the gut, an issue that I know plagues many in our community and is a frustrating and often embarrassing topic to talk about. So Dr. K is here to answer your questions openly and educate you on some things that may be happening as it pertains to constipation in the gut. Moderating today's webinar is one of our favorite board of directors members, Dr. Soania Mathur, a person with Parkinson's herself and a family physician, Dr. Soania Mathur is a huge advocate for Parkinson's and will be moderating today's questions. Welcome to you both.

Soania Mathur, MD (Board of Directors Member, Davis Phinney Foundation):

Thank you so much. Good afternoon, everyone. My name is Dr. Soania Mathur. I'm a family physician and Parkinson's patient having been diagnosed over 22 years ago now. And I have the privilege of serving on the board of directors for the Davis Phinney Foundation. And I really have the true pleasure of being your moderator today. So today we're going to explore further the topic of our gut and Parkinson's disease, problems with the gastrointestinal tract have been long recognized as parts of the symptoms of Parkinson's disease. In fact, in James Parkinson's first descriptions of this condition dating back to 1817, he made mention of things like drooling, trouble swallowing, and constipation as being part of this disease. But unfortunately for decades, there was very little attention paid to these issues, even though they can, as I mentioned, really significantly affect our quality of life. So to help us tackle this important topic today is Dr. Cherian. Now Dr. K, I'm going to say. Dr. K is movement disorder specialist at the Meinders Center For Movement Disorders in Oklahoma City. He's a keen clinical educator who has received several teaching awards and is a frequently invited speaker for CME programs. Focused on community medicine, he has developed clinics for the uninsured in tandem with patient support groups to help improve statewide access to movement disorder specialists as well as access to research studies. Dr. K, thank you for taking the time to be with us here today.

Cherian Karunapuzha, MD (Movement Disorder Specialist, Meinders Center For Movement Disorders):

Thank you so much for having me today. And my name is probably the hardest thing you guys can learn today. It is, the Z is misleading. It's like an R and it's Karuna Pura. It means river of compassion.

Soania Mathur:

That's, that's really beautiful. Dr. K, as I mentioned earlier today, we were going to discuss many of the gastrointestinal symptoms of Parkinson's such as bloating, indigestion, constipation. Now we all kind of know what these conditions are, but perhaps we're not really aware of the actual definitions. So can we start there perhaps?

Cherian Karunapuzha:

Sure. so with constipation, there is actually a clinical criteria which we call the Rome IV criteria, which we can use to define properly. What is constipation for a patient, which is fewer than three spontaneous BMS or bowel movements per week, straining for more than twenty-five percent of each attempt that you have to defecate, lumpy or hard stools for at least 25% of the time that you're trying to have a BM, and the sensation that it's incomplete, for at least 25% of the times when you're having a BM that you don't feel like you're fully evacuated. And then finally many times where at least twenty-five percent of the times, you have to manually disimpact your stool to have a full BM. These are all the symptoms of constipation, and you have to have at least two of these five symptoms, which I had mentioned for the preceding six months. This is in a sense what constipation is. However, from our perspective for Parkinson's fewer than three bowel movements per week seems reasonable to have as a definition for a normal person and his bowel moons. However, in Parkinson's I like to say you have to have a bowel movement pretty much every day. This is so crucial for various reasons, which we can get to further down the road in this discussion, but it's very important. So if they miss even a day, I'm calling them mild constipation.

Soania Mathur:

Right. And when does constipation usually show up for people with Parkinson's disease?

Cherian Karunapuzha:

Sadly, constipation can be one of the earliest signs of Parkinson's. In fact, even preceding many times your physical symptoms by four or five, even 10 years before you first started develop slowness, stiffness, or tremors. And this gradually picks up even after you have physical symptoms, the extent of constipation picks up more and more as the years go by.

Soania Mathur:

And does this mean that, you know you're talking about the pre-motor symptoms of the disease such as things like depression and sleep disorder and lack of smell as well, I guess but if a person has constipation does their risk of developing Parkinson's increase as well then?

Cherian Karunapuzha:

No. There are multiple causes for constipation, right? So constipation is more of a symptom, which means it is a way for whatever is your disease state to manifest. Constipation by itself is not a disease and many diseases or disorders can cause constipation of which Parkinson's is one. However, if you have multiple of those premotor symptoms, which you just highlighted, right, losing a sense of smell, signs of constipation, you're starting to talk or act out your dreams. And you're starting to have mood swings, these things in multiple combinations if they're coming together in a patient, you start to get worried. In fact, actually nowadays we get such referrals from other ancillary specialists, like our sleep specialist, who does the sleep study, and he catches people with, let's say, REM behavior disorder, which is what I just explained, where you act out your dreams, you talk or mumble in your sleep. And there's time to do that. They're sensing way early, just to see if we can catch any subtle physical symptoms.

Soania Mathur:

Right. So to turn that question around, will everyone with Parkinson's disease get constipation? Is it very common?

Cherian Karunapuzha:

Extremely common. I would say 80 to 90% of patients will develop constipation and/or gastroparesis, which is the slowing down of your entire gut or your bowel system. And this can manifest in many ways, one common majority manner in which it manifests is constipation. For some people, it's also the experiencing of bloating, feeling like they're getting full too quick, they eat a small meal, they feel full, or the actual phenomenon of nausea or vomiting that whatever's in their gut, doesn't seem to go anywhere. It almost wants to come up, heartburn. These are all variations on that same theme where your gut is slowing down, it's coming to almost a standstill, starting with your lower part of your gut and working its way upwards towards your stomach.

Soania Mathur:

And how common is that? Gastroparesis or slowing down of the stomach in Parkinson's?

Cherian Karunapuzha:

Again, because it's the same kind of damage hitting across your gut. It's almost inevitable if you live long enough with the disease, what starts off as constipation, picks upwards to the higher parts of your GI or your gastrointestinal system. So it's inevitable in a way, if you think over the course of, let's say 10 years with Parkinson's, you are going to get a lot of issues with your stomach not emptying on time. It's going to keep holding a lot of its contents within there. So

over the course of 10 years, I would say a lot of patients, I would say at least 30 to 40% of patients by around the 10 year mark, they are going to develop, gastric emptying or gastroparesis where they slow down and push things slowly through their stomach.

Soania Mathur:

And are these conditions Dr. K, are they issues that are present because of the disease itself? Or is it a consequence sometimes of how our symptoms affect our abilities to say, you know, eat or procure food or medications? So how does that factor in?

Cherian Karunapuzha:

More of a direct effect, meaning there is actual damage to the nerves, which line the gut. Those nerves tend to get damaged in Parkinson's and multiple systems start to get affected. It's not just constipation, right? All your other automatic stuff like your bladder, your sweating, your secretions in your mouth, your blood pressure, every single component starts to get affected over time. There seems to be a higher predisposition towards the gut though, that the gut automatic symptoms seem to be much more hit than the other ones, at least early in the disease.

Soania Mathur:

That's very interesting. I think that's something we'll talk about that whole gut brain connection in a couple of moments, but just to go back to maybe some of the practical steps, when it comes to constipation, what do you recommend? I mean, it's very common. What do you recommend to patients in terms of dietary issues or hydration that experience these symptoms?

Cherian Karunapuzha:

When we first start off with a patient who has been freshly diagnosed and has early symptoms of Parkinson's, we initially screen for constipation. Let's say they have mild to moderate constipation. We tell them it's extremely crucial to have daily bowel movements, for two reasons. One, you don't want to get infected plain and simple. The end consequence of having extreme constipation is infection of your stool. Second, the medication itself levodopa, the main medicine which we have for Parkinson's is not absorbed across the lining throughout your intestines. There's a small window of opportunity for it to be absorbed in the first part of your small intestine..

Jackie Hanson:

Although Dr. K cuts out here. What he goes on to say is that when medication is absorbed, it is absorbed in the first part of the small intestine directly after the stomach. And if you're constipated, the medication that you take cannot get through the stomach to the first part of the small intestine to be properly absorbed, therefore not receiving any of the benefits that medication provides.

Cherian Karunapuzha:

This is why we always preach this from the very beginning to have daily bowel movements. And in the initial stages, we tell them, increase fiber, add a cup of fruit juice, raisins, so dietary changes, which they can easily incorporate. And the simple rule I like to tell folks is if you took a tall glass of water with each of your Sinemet dose, there in itself gives you eight to 12 ounces of water three times a day, you've already hit simply because you took your medication. And the reason, by the way, we tell folks to take the tall glass of water is to push those pills past your stomach, into the first part of your intestine. Almost like you're flushing it through. So water becomes the second thing. So meaning whatever you're trying to ingest, you're lubricating it with enough water. The third becomes medications, which not just add fiber for example, like Metamucil would be a medication that just simply adds fiber, but medications which bring or pull in water into your gut. Miralax, Milk of Magnesia, these are medications which pull in water into the gut. Again, these are meds which are available over the counter. I'm not talking about prescription meds as of yet.

Soania Mathur:

Great. I mean, one question that I have often gotten and I'd like to hear your take on it is people ask if tea or coffee count for their fluid intake when they have constipation, what's your feeling on that?

Cherian Karunapuzha:

Tea or coffee, there's two components. One, the liquid component of whatever you're drinking always helps. How are you getting your liquids in? If you're doing a smoothie, you're doing orange juice, if you're doing coffee, it's always lubricating. The caffeine content many times behaves like a weak diuretic, which means you end up peeing more of the water content which you drank, it's a little bit of a mild diuretic to go along with it. The one advantage of caffeine in this particular form of constipation, in Parkinson's, is the fact that caffeine behaves as a prokinetic and prokinetic would mean conceptually something which promotes the movement within your gut. This is why a lot of us feel this, right? First thing in the morning, we have our breakfast, we have a cup of coffee, and then you feel like you need to use the restroom.

Soania Mathur:

Right. Other than that dietary or hydration guidelines that people can follow, is there anything else in terms of lifestyle changes that patients can make that would help with their constipation, like exercise or...?

Cherian Karunapuzha:

So having a daily exercise regimen, which includes abdominal contractions, I have seen it anecdotally to be very useful in a lot of our patients, especially morning exercises seem to help push through a lot of bowel movements. This has been formally studied through abdominal

massage as part of physical therapy where we did not see the same kind of benefits. However, I do encourage this with all our patients to be active, exercise, focus on your core, including your abdominal musculature, cause I've seen it at least anecdotally in our practice that it does help.

Soania Mathur:

So if you put all those dietary and lifestyle changes into place and you maybe pick up one bulk forming laxative, for instance, such as Metamucil or something like that, and you're still having difficulty controlling your bowel movements in terms of constipation, not incontinence, is there a role for medications and which medications do you use?

Cherian Karunapuzha:

Usually... Sorry. So usually my next step would be to pick a stronger laxative, like Miralax, or Milk of Magnesia to try and again, the key with these sort of laxatives is we have a tendency to use it only when you need to. So for example, I'm constipated. I don't take it today. I just try and see if I can have a bowel movement today. Didn't happen. Tomorrow again, I'm constipated. Okay. Maybe I'll try Miralax today. So instead of playing catch up, the problem with doing a catch-up form of treating with laxatives, is that many times you overshoot the mark, like you've had constipation for two, three days, you end up taking a laxative and you keep taking laxatives till you have a bowel movement. The problem with this is that eventually whatever hardened stool passes, the rest that comes after that is diarrhea.

So you yo-yo between constipation and diarrhea and then for the next few days, you don't take any laxatives because you have too loose of stool, which is why I always suggest when you take drugs like Miralax, take a little bit every day, just to help lubricate your gut. And you will find that happy medium for yourself. It could be just a half cap of that Miralax, maybe it's a quarter cap, but it's daily. Don't play catch up. Don't wait till you're constipated for three days to do a laxative, but a daily dose of these sort of laxatives to keep you regulated and regular. This way you don't get into that scenario of excessive diarrhea and bloating, which comes when you take a whole lot of Miralax to clear like two or three days of constipation.

Soania Mathur:

And how long should I as a patient, do all these things over the counter before I seek some help from my medical team?

Cherian Karunapuzha:

So give or take, let's say dietary changes, you would want to give yourself at least two to three weeks to get into the regular habit of incorporating that daily. I'm taking my prune juice with my coffee. I'm adding a little bit of Metamucil in the morning. This is something you want to regulate over weeks. Don't try to think this is going to self-correct in the span of one week or two. Also remember a lot of the medications which you're taking actively for your Parkinson's has to be stable too. If you're having a lot of flux in your Parkinson's meds that would not be a

great time to seek added help for constipation because those meds itself have to be evened out before we can understand, is it the meds contributing a bit to your constipation or was it unrelated constipation? So let's say you added a new medication.

There are some of the medicines we use in Parkinson's tend to give you constipation, even other than levodopa itself. For example, all the medications within the amantadine class, they tend to give me constipation because it has a property which makes your gut slow down. We call this the anticholinergic like effect. Same with certain tremor medications we use in Parkinson's like Artane or Cogentin, same phenomenon. Also to understand is some of the medicines we use for other conditions like older generation antihistamines like Benadryl, your Tylenol PM. These have drugs which tend to constipate you. You go in for a dental procedure or an elective surgery and you get pain meds, it's going to add to your constipation. So all of these fluxes are important to keep in mind that my constipation is not a steady phenomenon. It can vary because of other elements of my either disease state or in the meds that I take.

Soania Mathur:

And I guess it bears mentioning at this point, when you're talking about other causes of constipation, that our listeners should remember that it's not necessarily a Parkinson's disease, just because we have Parkinson's disease doesn't give us immunity from other medical conditions as well. There's a couple of questions actually about fecal incontinence, I guess the other, well, not necessarily, but another sort of presentation of gut issues in Parkinson's disease. Can we talk a little bit about that?

Cherian Karunapuzha:

In the lower end of your intestine, which is, that's your sigmoid colon, your rectum, and then your actual anus or your anal sphincter, at this region, there too, you can get significant autonomic nerve damage. Those automatic nerves can get significantly damaged to where you can get two/three unique phenomenons. One is simply incontinence. You don't have appropriate control on your anal sphincter to where you're actually having accidents. This typically tends to happen way further down the road in much more advanced Parkinson's patients is where you start to get incontinence, which is fecal. Typically urinary incontinence is more common, but fecal incontinence can happen. Fecal incontinence can also happen in someone who's been extremely constipated whereby the stool eventually starts to trickle or leak out. You can get a variation of the same phenomenon whereby you have extremely loose liquidy stool gushing out every couple of days.

And that happens because you have very hard, in fact, stool at the bottom end of your intestines and all the food, which is preceding it becomes so liquidy that it gushes through the small crevices and spaces available along the side of the impacted stool and just keeps gushing out as well. And you keep thinking, oh man, I have diarrhea. I don't have constipation. In fact, you have the mixture of the two. So that's another variation of this fecal in continence. These are times where, either your primary care doctor or your gastroenterologist, if you have one for this condition or your Parkinson's specialist will get a simple x-ray of your gut or a sonogram of

your gut and see if that is what we're dealing with, that you're having a mixture of hardened stool and bloated bowels behind it with liquidy stools. So that's one scenario. The second one is where you have an outward obstruction syndrome.

Jackie Hanson:

Dr. K's audio begins to cut out here again, but he goes on to say that the other phenomenon of fecal incontinence is when you actually have an outward obstruction syndrome, which is when you feel full, but when you go to sit down, you're unable to actually gather enough strength to poop or release. He says that one solution for this is to actually squat when you're going to the bathroom, by using something such as a Squatty potty, almost as if your frog legged. He says, this is much more common in Asian countries and therefore much more comfortable for some people than it is here in the US, but that can really help with releasing. Another option he says is to scoot your tailbone all the way back to the edge of your toilet so that you have that extra pressure almost pushing up on your body to help have that resistance as you attempt to release. Dr. K then goes on to talk about what a doctor may be able to do if you've tried both of these options at home and still have not been able to poop.

Cherian Karunapuzha:

They have various ways to go about fixing that sort of lack of coordination or synergy, including injections like Botox injections to the sphincter, which loosens up the sphincter tone and helps you poop more easily.

Soania Mathur:

Those are great practical tips.

Cherian Karunapuzha:

The third scenario, which is more unique to women is the simple fact that if they've had multiple pregnancies, vaginal pregnancies and deliveries, their space around the muscles over there have become more lax. You can have weakened pelvic floor and so Kegal exercises are very useful for them. And that also helps with their bowel movements. If they have vaginal prolapse, that too can impact the way you have a natural bowel movement. The third scenario is after, on top of all of this is that sometimes you don't realize the extent of constipation that you have, but you notice it through your urinary frequency. You start to pee very frequently. Your bladder seems to want to empty all the time. And that's because the rectum sits right behind the bladder. And if the rectum is loaded and full with stool, it's constantly compressing on the bladder to where you feel like you have to pee a lot. So the patients never complain of having extreme constipation, but they keep talking about frequent urinary needs. And many times the urologist picks up on the fact when they do a sonogram or an x-ray, they pick up on the fact that aha, we have a loaded rector, which is compressing on the bladder.

Soania Mathur:

Right, that makes sense. We've sort of been talking a lot about constipation, but people are also wondering about the whole gastric delay, indigestion, bloating, and that sort of thing, and what you recommend people try in order to alleviate those symptoms?

Jackie Hanson:

To answer Soania's question, Dr. K first starts by talking about bloating.

Cherian Karunapuzha:

Where your gut is not really moving and there's also some backend blockage, right? So there is some element of constipation and you end up getting too full of a feeling, either the upper part of your large intestines or your small intestines. Gas can be another reason for why you feel that excessive flatulence which also can feel that same way as bloating. There are, there can be also medications which can enhance this feeling of bloating and unease and especially drugs, which are used for our thinking. So this is more advanced Parkinson's patients. Indigestion and heartburn is more of a varied picture. This can have many causes. It's not necessarily just the gut motility. It can be because your overall enzyme systems, which contribute to your gut digestion doesn't work, right, so it can be your bile ducts, your gallbladder, your pancreas. So if you have simple indigestion, where you feel like whatever you eat is not digesting well, you feel bloated, you feel like you're having very oily stools, that's when we bring in the gastroenterologist to be sure that, Hey, is this just simply slowness in the gut? Or are we dealing with something else altogether? Heartburn and acidity is common in Parkinson's once they start to develop extreme slowness in their stomach, meaning more advanced patients whose stomach is starting to move very slow will have a lot of reflux, especially at night, and they wake up next day morning with the hoarse throat or they cough through the night. These are all variations of the heartburn. One common thing, which we sometimes don't think about is the fact that Levodopa can enhance peptic ulcer or enhance the acid production in your stomach. So if you have a little bit of ulcer or erosions in your gut, it is enhanced by these medications. So this is how many times people talk about they feel odd or crazy after they take their carbidopa/levodopa. Not when they first start the medication, because when they first start the medicine, that's the medication inducing a feeling of nausea. But for people who are feeling the same sensation, 2, 3, 4 years after taking levodopa, they're still having an unease. That's not nausea. That is something else along the lining of the gut, which is triggering. And so that's when your Parkinson's specialist or your neurologist has to think, I need to get the gastroenterologist involved so that they can do an endoscopy, look inside and see if there is erosions or an ulcer at the stomach.

Soania Mathur:

Right? So people should have that in the back of their minds, when they start to experience it, not just blame their medications, particularly if they're late in the disease, it seems.

Cherian Karunapuzha:

Correct. It's timing. It's all the timing. If you first start levodopa and you get nauseous, that's most likely the medication inducing your nausea centers in your brain. If you're on the medication for three, four years, and you're still experiencing nausea, something else is going on.

Soania Mathur:

Just to, it's still on topic, but you know, we always encourage people to build a team of professionals that can help them through their symptoms to improve their quality of life. And so some allied health professionals come to mind when I was discussing this topic. So for instance, would a nutritionist or a dietician, be someone to bring on board to your team, in order to help you manage these conditions of the gut?

Cherian Karunapuzha:

Extremely, because diet and the modifications you bring in like more fiber, what kind of diet, if you're used to eating your meals a certain way and you don't know what else you can cook at home, these are great options where dietician or a nutritionist can come in, offer suggestions, which works for your lifestyle.

Soania Mathur:

Right. Yeah. That's very true. Everyone lives a different life in terms of their food. What about speech and language pathology?

Cherian Karunapuzha:

Again, extremely useful to have for a couple of reasons. One the same slowness, which affects the entire set of your bowels, it goes further up also into your throat and your swallowing muscles. Many times patients will start to develop difficulty swallowing, not just at the throat or the tongue level, but they feel like things get stuck right in their neck, in the middle of their neck, or as it's going down, they feel the sensation that it's not fully gone down. This is again a variation of the same thing where your gut has come to a standstill and your esophagus, your food pipe, it tracts your food from your mouth all the way into your stomach starts to slow down in the same manner. Again, here, the gastroenterologist gets involved. They look in after the initial speech therapist evaluates this person and sees if there is a swallowing issue, is it happening at the throat level? Is it happening further down? Is it happening in your esophagus? They do multiple tests, including what's called, a barium swallow. If they find that it is happening further down, they get the gastroenterologist involved who usually will stretch or dilate the esophagus, your food pipe so that your food can go through much more easily.

Soania Mathur:

Okay. What symptoms should people look out for that would make them consider consulting a speech and language pathologist? Or what do you look for in order to make that referral?

Cherian Karunapuzha:

Always on screening, when they first see us and every subsequent visit, we talk about is your voice getting softer? Are you mumbling? Are you trailing off? Because many times a soft voice is the first sign that those muscles in that region, like your throat muscles are getting weaker. Once they get weak, it's a slippery slope. After one or two years of having a soft voice, that's when the choking starts, where you have mild issues with clearing certain kind of food consistencies start to get more problematic, certain kinds of pills or tablets start to get harder. And that's your first sign that you're starting to have difficulty with swallowing. We try to nip it in the butt and catch it early. Even before the swallowing issue start, when they start to have a soft voice itself, we incorporate a speech therapist so that they stay in touch with them to improve their volume, which indirectly helps their swallowing initially, at least, and further down the road when they actually start to have mild choking, we catch it at that point and incorporate again, the speech therapist for specifically swallowing issues,

Soania Mathur:

Right. And I guess that's where your dietician can also come into play in terms of varying your diet in terms of texture.

Cherian Karunapuzha:

This is correct. This is correct, because once they've developed significant swallowing issues and the speech therapist is working with them, many times, the therapist will suggest a modified diet till they can get the throat muscles stronger. And in such a scenario, having a dietician, nutritionist is useful because they can tell you how best to modify your diet in such scenarios.

Soania Mathur:

Right. A team approach again.

Cherian Karunapuzha:

Yes, indeed. Yes, indeed.

Soania Mathur:

I have a question. I sort of alluded to it earlier, but there's a lot of research that goes into this, what we hear about now, this gut brain connection in Parkinson's that perhaps whatever's causing the disease may in fact, start in the gut or, or reach the gut first and then progress to the brain. Can you explain that theory a bit more?

Cherian Karunapuzha:

So what happens in Parkinson's, at least the current hypothesis or theories behind the spread of Parkinson's, is that nerves start to get damaged because of a particular accumulation of proteins. And the funny thing is adjacent nerves sitting next to the damaged nerves will also start to have the same damage. It's like putting bad apples with good apples, eventually all the apples around it start to go bad as well, same concept. So there, it's like a domino effect. One starts and the next follow, and then the next one, and it keeps creeping upwards. So what we now understand is that there are many regions in our body where the damage can first start and then make its way upwards into your brain stem. And then finally into your main brain. One such region is your nose. This is why a lot of folks start to lose their sense of smell years before and it could be tracking inwards from that spot.

Another region is your stomach. Your stomach can show the first kind of damage in terms of this misfolded protein. And it can track back through those automatic nerves we talked about called the autonomic nerves going up, one of the major nerves, which supply the gut called the Vagus, up into your brainstem. So a tracking up of damage starting in your gut. And so we have actually studied this in multiple ways. We've actually artificially recreated this in animal models as well, where we inject misfolded protein into the gut and see how it tracks upwards as well. So we know something at least for many Parkinson's patients, something is starting in the gut and it's tracking its way up. And then it's, for that reason that many times the earliest signs even preceding the physical symptoms by many years is actually constipation.

Soania Mathur:

That's very interesting, a lot to learn that's for sure. We're starting to come towards the end of our time. I'd like to get to some of the questions that the listeners have put through in the chat. The first one is can you train your body to go at the same time every day?

Cherian Karunapuzha:

It's tricky. We're almost always so used to doing that when we have our normal functioning gut. And again, this is what we had alluded to before, you have your morning cup of coffee, you want to go, you have a rhythm. There is a natural gut rhythm, just like with most of our other automatic functions, including sleep. We have a rhythm or a cycle, and this is trainable indirectly by how you use some of your dietary modifications or laxatives. So for example, a lot of people take their prune juice with a little bit of a Metamucil at night, so that by the time it's worked on your gut, you're ready to poop when you wake up in the morning. So they time it in a way that they have a strategic bowel movement at a certain time of the day. Again, I tell folks it's, as best as you can try for that, but it's more important just simply to have a bowel moment. If you don't have it in the morning, as long as you have it by afternoon or evening, it's okay. Don't stress too much on trying to fine tune every small detail in your life.

Soania Mathur:

Great, good advice. You talked a little bit about how the slowdown of the gut can affect the absorption of medications, but this listener wants to know, can the slow down of the gut system increase the progress of your Parkinson's disease?

Cherian Karunapuzha:

No. It has no direct impact onto your brain in terms of disease progression, the disease progresses at the rate it's supposed to progress in your body. The slowing down in your gut is merely a symptom or a manifestation of that disease progression.

Soania Mathur:

That's good to know. Less people will worry about that. I have actually one final question to ask you, or one of the last ones, what is the most important thing that patients can do to maintain their gut health in the context of Parkinson's disease? Out of everything you've spoken about today, if someone had to make one change, what would that be?

Cherian Karunapuzha:

The one change, if you had to make, in your gut would be to incorporate something in your diet, which gives you that looseness as well as fiber at the same time. If I had to pick, I would take something in the dried fruit or a liquid version of that. So for example, prune juice, that was the one thing if I had to incorporate to change the way my gut moves, this would be it.

Soania Mathur:

That's great. And the other kind of related to this is one of the listeners wants to know what you think about the use of probiotics.

Cherian Karunapuzha:

They have studied probiotics in Parkinson's. What they showed, and again, this was a small study. What they showed was that didn't really change the extent of constipation that the individual faced, but it did help reduce some of the added symptoms of constipation. Like the feeling of unease or bloating did get better with the use of probiotics. So that's the data that we have scientifically. Use of probiotics is not a bad idea, especially in the early stages of the disease, with something which is bulk forming like Metamucil, in combination, will help with your bowel movements. For sure.

Soania Mathur:

Great. And one thing that we didn't cover that people are wondering about is saliva and drooling and the change in consistency of the saliva that patients seem to feel sometimes with Parkinson's disease.

Cherian Karunapuzha:

Yes. So salivary changes usually for more, I mean, you end up getting more excessive salivary secretions, or basically you drool more. This starts for a couple of reasons, first and foremost, because your throat muscles get weaker. And this is a continuum of what we were talking about with the soft voice, difficulty swallowing. And in turn, you don't clear your secretions in your mouth automatically or appropriately in a timely manner. And before which you know that these, it starts to pull up quite a bit in your mouth. The second reason is the more and more slow you get with Parkinson's, your jaw tends to stay half open. And because of this, there's a natural tendency for the saliva to drool outwards and kind of leak out outwards. The third reason is the actual autonomic nerve damage. Those same automatic nerves as we were talking about, which help with all the automatic functions in your body.

It also starts to get impacted in the secretions in your mouth. And when that happens again, you can get excessive drooling and this too can vary with the way you take medications. So people will start to drool or sweat excessively as the medicine fizzles out, like Levodopa wears off. This can be a non-motor manifestation. It can also get too dry based on the medications that you take. For example, drugs, which have a more anticholinergic like effect will make your mouth much more dry, like Amantadine or Artane or Cogentin. So these are drugs which tend to do the opposite effect. Nonetheless, the treatment for excessive drooling, and we take drooling very seriously because it's one of the most common causes of aspiration in Parkinson's patients and aspiration leads to bronchitis or repetitive pneumonia, one of the leading causes of hospitalization and death in Parkinson's. So to nip it in the butt, we always invoke speech therapy early to help promote swallowing and in turn the drooling usually subsides, if it is mild. If it is more intense and speech therapy is by itself not helping, that's when we invoke a drug such as botulinum injections. So we have two drugs which are approved for it, which is Xeomin and Myobloc which we can inject your parotid glands. Basically an injection that takes us literally two seconds to inject on your cheek on either side. It tends to control the drool for roughly three months at a stretch.

Soania Mathur:

I mean, that's really good to know because you know, it may seem like a nuisance type of symptom, but drooling can really affect a patient's quality of life, affect how much they want to socialize, their self-esteem. So I think it's really important for people to know that there are treatments that are available and it's not something they necessarily have to endure. So thank you for explaining that.

Cherian Karunapuzha:

Yes, indeed. And again, that's one of the biggest misconceptions with drooling is that a lot of patients poo poo it away thinking, you know, yes, it's embarrassing, but I really don't go out anywhere so there's nobody to look at me and I don't have to feel uncomfortable. So I'm going to leave it alone. My biggest problem with drooling is the fact that at night, because your throat muscles are weak, you have aspiration, not outwards, meaning you're not drooling and the saliva is not coming outwards, but it's leaking back into your throat. And it creates a high risk



for bronchitis and pneumonia. And again, as I said, this is what I'm really trying to solve here is the fact that you have a higher risk for pneumonia. I want to nip that in the butt, as much as we can. Obviously it will definitely help with your social interactions as well.

Soania Mathur:

Yeah. Thank you. So we're coming towards the end of our time together and thank you, Dr. Karunapuzha so much for your insight and expertise. It was really enjoyable and truly, and greatly appreciated.

Cherian Karunapuzha:

Always a pleasure.

Jackie Hanson:

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