

**The Victory Summit® Virtual Event:
The Parkinson's You Don't See: When Your
Autonomic System Goes Off-Track**
"What's Wrong with My Gut?"
Davis Phinney Foundation

Polly Dawkins (Executive Director, Davis Phinney Foundation):

What is affected in the, sort of from top to bottom, what is affected in the body with the GI system in Parkinson's and why?

Cherian Karunapuzha, MD (Movement Disorder Specialist, Meinders Center for Movement Disorders, Mercy Hospital):

So first off the GI system plays a huge role in not only the fact that it creates a whole lot of issue is what we call non-motor symptoms in Parkinson's, but it also impacts the way the medicine is delivered into you. So, the main medication that we take, which is carbidopa levodopa, the major bottleneck, which a lot of people start to face as the years go by is adequate and predictable absorption of the medicine. And one of the major reasons as to why this is a problem for patients is because your gut stops being your friend. And it does not help you transit your medications effectively downstream to where it needs to be absorbed in the first part of your intestines. And all of this starts about because the autonomic nerves, like what we alluded to a while ago, start to get damaged, again, for folks to understand autonomic nerves, refer to automatic, the things which you take for granted, these kind of activities in your body, these automatic stuff, which happens all across your body, the stuff you don't think about, your blood pressure, your bowel movements, your bladder, your secretions, what comes out of your mouth, how you sweat your temperature.

All of this is automatically controlled. And it's controlled through a sequence of nerves that we call autonomic nerves. These nerves start to get preferentially damaged in Parkinson's and related conditions. Many times preceding the actual physical symptoms, especially so in constipation.

Polly Dawkins:

So drooling as a part of that, it sounds like.

Cherian Karunapuzha:

It's very much so, but drooling has multiple reasons as to why somebody drools. One reason is the autonomic nerves stop reacting well. And so, you start to have excessive secretions as a result. Two it's also when your dopamine levels recede is when your mouth starts to open up way more than what's needed. You start to have this open jaw look.

And so more naturally the saliva starts to drill outwards or pull out outwards because of that action too. So, a lot of people will say, Hey, when I'm wearing off, I start to drool more. Number three, the swallowing muscles start to get weak because you're not using it effectively. Just like we know with Parkinson's. When you don't use your muscles, you decondition and weaken them. Same. Your voice gets softer. Your throat swallowing muscles also gets softer and weaker in that process. As a result, you can't effectively push saliva back stream. And so, all of it comes outwards. So, there are multiple reasons as to why people drool in Parkinson's, but autonomic plays a role in it too.

Polly Dawkins:

Let's talk about starting there, what strategies can individuals do to address this particular symptom?

Cherian Karunapuzha:

With the drooling or constipation?

Polly Dawkins:

Yeah. With drooling, we'll get to constipation. We'll move down the body.

Cherian Karunapuzha:

So, with drooling interestingly, the first step, which we always like to tell is we screen for softness in your voice way before your drooling or your choking symptoms start because it's almost like it's a predictor. Years before you start to clear your throat excessively things are starting to, phlegm is starting to catch at the bottom of your throat. You sip water or anything, which is a little thick after a while you're kind of clearing your throat a lot, couple of years prior to that, you probably would've noticed that your voice is getting weaker. And that's your first clue. Typically, it's around that time is when we have to nip it in the butt. Cause if you slide down to the point where you're already choking a lot and then the drool starts to come, it's hard to revert from that point back to where you were.

So think of it as like preventive maintenance, every year or every time your doctor visits with you, this needs to be addressed. Is your voice getting softer? If so, we need to set you up with some speech therapy to improve the projection in your volume. So that the more you use those muscles, the same muscles are also used for swallowing, you're sort of pushing away that swallowing issues and drooling issues further downstream, couple of years down, down, down. So, as I said, preventive maintenance, just like how we think about, we don't wait for you to fall to start physical therapy. We start to see that you are stooping a little bit more, you're having near falls, you're tripping a little bit, but you don't actually fall. That's the time to institute physical therapy and adequate exercise regimens to improve your core and your thigh and buttock muscles so that you can react to a fall better.

So, all these strategies start early in the game, so that you push or prevent a lot of these things from happening too early, and you're pushing it to the lag end of the disease, which it's inevitable. It will happen. It's not that it won't, but you're trying to push it as far as we can. So, the first step is always aggressive, early speech therapy, especially for volume, which indirectly will help with the swallowing. The second step, let's say, we're catching you at the time where you do have swallowing issues or drooling. First thing we do is send you to our speech therapist and they work with helping improving your swallowing muscles, because if they can strengthen that naturally, a lot of that saliva pool up will push back stream.

Polly Dawkins:

Got it.

Cherian Karunapuzha:

Two. We make sure that your dosed adequately. If your dosing of dopamine or any related drugs is inadequate and you're having a lot of dips in your day, what we call OFF episodes. Those are the times where I kind of mimicked it before, you're gonna have that open mouth look and stooped look. So, everything's kind of leaning forward to where the drool is wanting to come out. So, if you have a lot of those gaps, we treat the gaps. So those are first and second, number three, we look at options to correct the drooling despite if both of these things are adequately covered and you're still having drooling, then we have botulinum toxins. A lot of people know this as you know, words like Botox, Xeomin, Myobloc. These are medicines which you can inject into your parotid glands. Basically, we just pinch the skin and poke.

It takes us literally two seconds in our clinic, right after our clinic visit. And this botulinum toxin can suppress drooling for three to four months at a stretch. But you see that's taken care of only the drooling, it doesn't stop the other aspiration, which is happening because your throat is weak, which means that's only one element. So, you shouldn't go seeking botulinum injections to fix your drooling without addressing the strengthening part, the dopamine part. So, it's a complete holistic approach to the throat where it's the meds, it's the exercise. And if need be, the shots.

Polly Dawkins:

Got it. Let's go down the path. And with talking about meds and meds absorption, cause that's one of the things you mentioned, you've got your dopamine or your levodopa and it's entering into your body. If you can get it into your stomach, what's going on that absorption is an issue and you mentioned OFF times, could you describe that whole process and how to improve?

Cherian Karunapuzha:

So, the reason when you start to damage the autonomic nerves in your gut, what actually transpires is a slowness in the contractility of your gut. Meaning after I swallowed food, I don't know what's happening after that. I'm assuming something is pushing it downstream till I poop it out next day. But that contractility is what reduces over time for Parkinson's patients starting

usually in the lower gut and making its way upwards, upwards, upwards until finally, even their stomach stops contracting much. Sometimes even their food pipe, their esophagus stops contracting. This is when people start to feel like things are getting stuck or blocked in the middle of their chest. That's more advanced patients. So early in the game, it's the lower intestines which slow down. That's why they feel it like, hey, I'm constipated for years before my tremor first showed up. And then as the years go by, the stomach starts to also slow down.

This is so crucial because these pills which you swallow, the levodopa, that's what we care about is the levodopa. All the other medicines which we use in Parkinson's, this does not apply, right? Levodopa is only absorbed in the first part of your small intestines. So, which means, let's say you've advanced to the point where your stomach doesn't push through food or medicines very well. You can take your pills in a timely manner. Let's say it's, you're taking it every four hours. You're on the spot. You take your pills. It gets lodged in the folds of your stomach. It doesn't go anywhere past that. And so, you're waiting half an hour, 45 minutes. It should be kicking in now, hasn't kicked in. How come it hasn't kicked in? Because it's stuck there. Or another variation that is, huh? It is kicking in. It doesn't kick in like it usually should. Usually, all my tremors go away, my stiffness improves and I stop freezing. This time around the tremor's kind of half improved and I'm still freezing, what happened?

Those two tablets, which I take at a time, one of them went through other fellow, got stuck. All these variations start to come about as to that unpredictability. It's because your stomach is holding it back. This is why we like to say, make sure to develop a habit of early in the game so that you will reap the benefits of it later down the road, is always take your carbidopa/levodopa preparation, whatever formulation that is on an empty stomach, at least 30 to 60 minutes before or after your meal, meaning it should be on an empty stomach with a tall glass of water, a tall glass of water. You've gotta chuck the whole thing to literally flush it down the toilet, past the stomach into the first part of your intestines.

Otherwise, there's no guarantee you're pushing these things through. Even this by itself is not foolproof, but it regulates and streamlines you to a more predictable pattern. So many times when patients come in for the first time to see us, saying, hey doc, my medicines don't work right. Some of them work, some days I do get a better fit. We don't make any medicine changes. The first thing we do is take it the right way and after, I need feedback, I don't want anything else. I don't wanna touch your meds, take it the right way. And then we'll talk. So, part of that equation also is if things have to move downstream to your small intestines, just like railway carriers, every couple of hours, you know, every four hours, this medicine has to get there. Everything past that point also has to be clear.

So now you can see why we care so much about constipation, not just the simple fact that sure getting impacted is a bad thing. That's no good. But also, if you are plugged up two, three days from not pooping or not pooping very well, like big bowel moments are not going through, your pills don't work very well those days. So, you will notice this yourself, like man, certain days of

the week, it's just like the pills just doesn't wanna kick in and some days I'm great. What changed? It's the same bunch of pills I'm taking. It's this. So, your entry and your exit has to be very clean and be more streamlined. If you practice this now when you have early Parkinson's, early Parkinson's you don't have too much for a problem with this. However, doing due diligence now and getting into that habit of doing it makes it so much easier when you really need it down the road. Just like we say exercise. I mean, you can get away with not really exercising now, but if you started getting into the habit of exercising a little bit every day, 10 years from now, you'll reap benefits of this.

Polly Dawkins:

Interesting. Let say, we have so many viewers on here who are a little bit later in their diagnosis. And if they don't have this practice, is it too late to start this practice of keeping everything? No.

Cherian Karunapuzha:

Anytime, anytime. So, this is why many times our first visit with our patients is we talk about are you actually even taking this the right way. Number one, are you exiting yourself the right way in terms of bowel movements, these two things make or break a lot of time what we try to do because I can give you the most fanciest medication out there. Some fancy formulation of carbidopa levodopa. But if you don't take it right, it's pointless. And most people don't really that this makes a big difference. And now the third variable in all of this, remember how I said at the very beginning, take it on an empty stomach. It's not just so that those pills can transit fast to your intestines. It's also because heavy protein in your meals will mess up the absorption of the medicine. So that's no good either.

So, which means if you take your cheeseburger and then you eat your carbidopa/levodopa, you might as well not taking the pills because your gut cannot see the medicine. It only sees the protein, which is why we always say empty stomach. Or if you get kind of queasy with this medicine, something which is not proteinaceous, like orange juice, black coffee, saltine crackers, these things don't have a lot of protein in them. So, you can kind of get away with having something in your stomach, but not messing up your medicines effect. So, all of this becomes a major part into absorption.

Polly Dawkins:

Anything besides protein that interferes with absorption of levodopa.

Cherian Karunapuzha:

So, if you eat certain kinds of food items, which are more pasty or becomes pasty in your gut, your transition times also slowed down overall, even though you're having daily bowel movements, you're still having a lot of backlog. It's not big bowel movements. There's still a lot left behind, especially like I had a patient last week who said, hey doc, no, I have daily bowel movements. And I asked him, what is it exactly that you eat? I'm retired. So, since my wife is

working, I just eat nuts all day, peanuts all day, which is high in protein. And he says, I make sure to spend at least half hour gaps, but after those half hour gaps, he's just chugging in mouthfuls of the nuts all day, which his bowel movements not really full and exit out entirely. And it's all protein. And so, he's constantly feeding himself protein, even in the background, it messed up his absorption. And then when we talked about it, we started realizing, you know what, the days I had big bowel movements, it was like magic for the next day or two. I had great effect. And he could correlate because he just did that like so Friday or something before and make the connection.

Polly Dawkins:

Got it. Some folks are asking. What about creamer or light milk in your coffee? Is that a contraindicated with your levodopa?

Cherian Karunapuzha:

No, it's not, a little bit is okay, but if you do a smoothie, you're gonna mess things up, right? And you'll start to see this for yourself. Like one dose or two doses in a day, you take on an empty stomach, third dose, you take it with a smoothie or with something, which has a lot of protein in it. You will see this very clearly for yourself. Like, man, it didn't kick in. After a while, you kind of know that what we're preaching here. And so, you start to get a feel for how much to take, how much not to take. Some people, even just regulate or get themselves back to where they need to be, this used to be in fashion before we don't really recommend it these days, is going on a protein fast for a week and clearing protein out of their gut entirely. We don't usually suggest that because you do need proteins for your muscles. So, it's not a great long-term strategy, but in the interim to get sort of re-sync yourself back, they just completely avoid proteins, either vegetable or animal based for about a week.

Polly Dawkins:

So take your medication about an hour before eating if you can, if your doses aren't so close together.

Cherian Karunapuzha:

So technical recommendation is one hour before or two hours after a meal because that's the time, two hours, meaning roughly it takes about two hours for your food to transit, but you can think about it, right? A lot of patients who are watching this is more advanced and they're taking it four or five times a day, maybe even more, how are you going to give yourself that kind of spacing when you're only awake 15, 16 hours a day and each time you go spare one or two hour gaps, it's technically impossible. So, we like to say as best as you can, if you can spare at least 30 minutes before or after that's more realistic, ideal would be what I just said before one hour before or two hours after, but that's not always feasible.

Polly Dawkins:

Right. Right. Let's go back to the example of a person who's needing to, who is already blocked up and needing to start a regimen. What's a good way to get this started? So, taking water, what other things?

Cherian Karunapuzha:

So, water makes a big difference because you're lubing your gut. So, as I said, your stomach starts to stop contracting and your gut starts contracting. And eventually it's one big classic tube. Literally it's just food will only go down like sludge and any exercise which you do will help that process because you're contracting your abdomen. So, food has to be lubricated for it to go down effectively. So, remember when you take that tall glass of water with each of your doses of your medicine, that itself helps suffice for all that liquid going in. So that's good. There gives you your bonus for wanting to, or having to drink a glass of tall glass of water. Two dietary changes is very crucial. You wanna add more fiber, either more, naturally more fiber or the stuff that you get over the counter. Like, you know, the the Metamucil, the Benefiber, those kind of things, which add more fiber into your diet is very crucial to bulk up the stool so that it can go, it can hold water.

This fiber is able to hold water. So, when it holds water, it loosens and bulks up to where it can go downstream. Two, adding things like dried fruits or the juices of dried fruits like prune juice, raisin water, or just eating these things helps also pull in water into the gut. So dietary wise, these are some of the things we recommend to kind of streamline the gut part. Let's say they're actively constipated. We tell them how badly are you constipated? Are you impacted to the point where you have to manually disimpact? Then we recommend enemas, to kickstart a bowel moment, clear the backend issue, and then get on a daily prep or daily laxative program. Again, the key is not to get into diarrhea. The key is to just take enough to keep the bowels loose. So, people find that sweet spot for themselves, whatever they pick and choose as they're over the counter meds, and I can tell you over the counter, what works best in my practice I've seen has been Miralax or Milk of Magnesia, if you take a little bit, again, not necessarily a full cap of Miralax, maybe a quarter cap every day or every other day, it seems to lubricate the gut enough to where they poop. So, it matters most to clear the bottom end and then start this regimen. Otherwise, what happens? You're chugging Miralax all day loosening up the front end of all this and on the bottom end, which is still stuck is just building up. So, you're gonna get real, real bloated. And then eventually it's one big gush of diarrhea clearing your gut. And then you cycle back and forth between this. When you have all this diarrhea, you stop taking all your laxatives and then you start clamping up again. So, you yo-yo between the two. So, the key is unplug and then a little bit every day to finally start to have daily bowel movements. That makes the big difference.

Polly Dawkins:

Got it. That's super helpful that you've touched on a question that a few people have had about what is bloating and have we just covered it there? That bloating is that...

Cherian Karunapuzha:

Fullness of feeling, the sensation that your stomach is full of gas or with food to where you feel uncomfortable to where there's a stretch-like feeling in your stomach. That's the bloating sensation we talk about.

Polly Dawkins:

Got it. Let talk about sort of gastroparesis or slow stomach emptying and strategies. We've heard a number of questions about gastroparesis and Parkinson's. Can you talk about what that is?

Cherian Karunapuzha:

Gastroparesis is simply the technical term for what we just described, where your stomach slows down and doesn't really push anything through. Gastroparesis can also happen when you have other concomitant diseases, which affect your autonomic nerves, especially bad diabetes. A lot of you guys experience this along with your Parkinson's. Diabetes also hits your nerves and your autonomic nerves too. So, a lot of them get gastroparesis. So with gastroparesis, when the stomach has slowed down to where even a little bit of food makes you so full and bloated, that's when, you know, technically you're kind of in that range of where you're starting to develop gastroparesis, or if you're starting to have a lot of unpredictability with your carbidopa levodopa absorption. The treatment typically is we get our gastroenterologists involved because there are certain unique medicines that we can use to help kickstart the gut into contracting at least a little bit.

There are some strategies involved irritating the gut line. So, you take certain medicines which irritate the gut line and that in turn pushes things forward. This is not always foolproof because that also creates some irritable feelings, some butterflies in your stomach like feeling. So, the little crampiness, as you have bowel movements. And so certain medicines like erythromycin, these are antibiotics that irritate the lining and they can use this for gastroparesis. There are other medications which behave like what we call prokinetics, meaning promote kinesis or movement in your gut. And this class of medication, there are several of them out there. The more newer ones is what I would prefer to use. Like prucalopride is one such medication which you can use for gastroparesis.

Polly Dawkins:

Couple of questions about how to take the levodopa about chewing it or taking it dissolved in water or taking it with carbonated beverages. Any thoughts on those questions?

Cherian Karunapuzha:

Carbidopa/levodopa gets broken down pretty quickly in your stomach, stomach acids, and then further downstream. You don't need to do this if you have adequate absorption, each time you take it, it's kicking in relatively well, no need to do any of these extra things. However, if you wanna increase the speed at which you absorb the medicine, crumbling the medication in your

mouth, or taking it with soda water, anything which is carbonated, which has bubbles, it increases the surface area of this medicine's absorption in one pass, like all of a sudden there's a whole bunch of medicine, which has more, which can coat the lining of your intestines more so that it can absorb faster. These are techniques which patients have told us over the years that have worked for them. Again, I only recommend these strategies if they have a problem with quick action versus not. So, for them, it takes them a long time, it kicks in, it kicks in well, but it takes a long time to kick in. So, a lot of times we suggest crumbling, opening the capsule contents and scooping the whole capsule contents with apple sauce, taking it with carbonated water, just to make it kick in a little faster.

Polly Dawkins:

Got it. Folks have asked about kombucha or probiotics. Any thoughts on...?

Cherian Karunapuzha:

Not much data, well, I would say not much positive results with the use of probiotics in Parkinson's, but it is what your gut feels. If the probiotics help you have daily bowel movements, go for it, or otherwise, we typically leave alone. In people who have extreme gastroparesis, where the gut has just come to a standstill. There, we typically try not to do probiotics because you can get very quickly an over colonization of bacteria in your gut and stomach, which impedes the absorption of other nutrients in your stomach too. So, one reason why we are able to keep good bacteria in our stomach is that we're able to poop out a whole lot of it with our stool. Each time they grow up when they colonize and a lot of it is growing, every day poop is pushing a lot of that out. So that's good, but if there's no movement, all of this overgrows in there and what was good for you becomes bad for you. So, it many times impedes the absorption of a lot of nutrients. So, with extreme gastroparesis, it's actually one is a problem which we call bacterial overgrowth which happens with people with extreme gastroparesis. So, in those situations, we don't wanna add more fuel to the fire by adding bacteria from the outside with probiotics.

Polly Dawkins:

Sure. Somebody's asking about stool softeners.

Cherian Karunapuzha:

Yes, very much so. Stool softeners work, as I say, there is no real algorithm for using over the counter laxatives, whatever works for your system is what I like to say. Usually when you get to the middle stages of the disease eight, nine, ten years into your disease, the big guns are what usually works. The Miralax, the milk of magnesia.

Polly Dawkins:

Got it, got it.

Cherian Karunapuzha:

There are also prescription medicines, which we would pick and choose after that point. But we usually tell everyone to try the cheap over the counter ones first, before we write a prescription and there's several such prescriptions that we could offer.

Polly Dawkins:

A number of questions are related to reflux and esophageal reflux, are those related to Parkinson's and the whole GI slowing?

Cherian Karunapuzha:

It can be. So just part of the same slowing, your esophagus slows down, and also many times the bowel sphincter between your food pipe and your stomach also becomes lax, which means all the acid starts to come up, especially when you lie flat. So, you wake up hacking, sore throat, reflux feeling. So, in such scenarios, your primary care doctor or your neurologist, or your gastroenterologist will give you medicines to reduce the acidity. Another variation of this is where your esophagus just starts to contract and get real tight to where food doesn't really pass through. We call this a Nutcracker esophagus where it spasms on you. For that too, the gastroenterologist goes in, can stretch out the lining of your esophagus, which will work for a while, and then it starts to contract back. And again, they go and balloon with the balloon, stretch it out again.

Polly Dawkins:

Interesting. Tell us a bit about the strategy that you mentioned about exercise, exercise for your digestion in your GI. Are there any recommended exercises or...

Cherian Karunapuzha:

Not really a recommended exercise, but the simple fact that you are going exercising your muscles or your legs, or your cores will activate your abdominal muscles, the stomach muscles, and as it contracts, same, very intuitively what is inside will also get squished. And as I said, because you have no contractility to your gut, external contraction helps with that aspect. And so having daily exercises helps you have daily bowel movements other than obviously keeping your muscles tuned up.

Polly Dawkins:

Yeah. So, Dr. Norcliffe-Kaufmann talked about exercises that would help with the squeezing of your core and your buttocks and your thighs to move your blood pressure, sounds like those might be similarly helpful for you.

Cherian Karunapuzha:

Very similar, very similar. Although there, the concept is when you contract those set of muscles, you are pushing a lot of your reserve blood, which is sitting, in your thighs, in your calf muscles and in your abdomen, back to your heart. A lot of these places pool blood and they sit there and they're pushing up. They're going back to heart, but at a slow pace. So, when you

contract these muscles, it helps push blood more to the heart for it to pump. So, meaning the more blood the heart has to pump. The more pressure you're able to sustain. This is why many times we wear compression stockings or abdominal binders, which tighten up your trunk. So that overall from the outside, things are compressing. So, a lot of that blood doesn't stay pooled in your legs or your stomach. And it pushes back to the heart for it to pump effectively.

Polly Dawkins:

Would abdominal binders help with digestion?

Cherian Karunapuzha:

No, because it's not an active contraction. It's just a sustained compression there. So, what you need is the contraction and release. So, this is where exercises become a big role in all of this.

Polly Dawkins:

Got it. All right. I am gonna look at some of our questions here. We've got about 10 more minutes, do you feel like we've covered a lot of what you were hoping to talk about?

Cherian Karunapuzha:

No, of course. Very much so. Very much so. I think we've brought that message across that why it's so crucial that we tackle this, not simply from the standpoint of being an uncomfortable process, but also the fact that it matters a whole lot on how you find your medicine kick in. So, it's a big aspect of Parkinson's.

Polly Dawkins:

A number of comments earlier, we talked about the Duopa pump or the enteral suspension of the levodopa. Can you comment on that strategy for absorption of the levodopa?

Cherian Karunapuzha:

So a lot of strategies involve bypassing the bottleneck that we face with this gut transit and one such approach was, what if people just tunnel in a tube straight into the section of your gut, where the absorption takes place and shoot, you know, send out levodopa like a gel. So, it coats that space constantly. So, there's this constant absorption of this medicine in that region. So, this, the concept came out very early in the game, back in the eighties, even, and it finally conceptualized and materialized, you know, several years ago. And so, Duopa pump is a great strategy for several patients who have very limited absorption or very erratic absorption. It does come with its own cumbersome elements as people who either wear it, no, or seen it and, or guys like me, who've actually prescribed it. It's because it's a tubing, which is tunneled into your stomach.

So all the hassles which come with that, like sometimes the tubing can get kinked. So, meaning that the gel won't go through, the tubing gets yanked out. Especially you move your hand too quick, or the tubing gets hooked along the doorframe or the door handle. These are raised

because when you walk through a doorway, through a threshold, you don't center yourself, and you kind of touch and you go, and it hooks the side, the size of the equipment, all of this factors in. So, it's not for everybody. And it's not just this that we come up as a strategy to bypass the gut. So, this is where rescue therapy comes in for a Parkinson's patient, where most of the rescue therapy that we have in the market, right? So, injections, inhalers, and strips you put under the tongue. The concept is if you are not absorbing well, you've suddenly come crashing down, taking another dose of your levodopa doesn't really work as a great strategy because that stomach has already slowed down there and it's holding back already the existing medicines, which were supposed to kick in. Adding one more in there doesn't really change much.

So, to bypass that quickly, you absorb under the tongue, or you absorb through your lungs, or you absorb straight as an injection. So, these are strategies to circumvent or break that sudden freezing, which you get. And that's what we call rescue therapy, which is sort of the new fashion or the new way of practicing Parkinson's, which is an aggressive form of practicing Parkinson's. And some of the people who experience disorders like migraine, understand this well, where they take medicines daily to prevent the migraines from coming on. But also, they have a second medicine they keep on standby, because if there is a breakthrough migraine, I want to disrupt it quickly, same concept. You take medicines daily to even out and keep yourself mobile and ON. But if there's a sudden disruption to where you're OFF, something quick to bring you back up. So, this strategy is followed by a lot of Parkinson specialists these days where we're not simply giving you levodopa, but we're being aggressive in trying to correct these things on a day to day basis.

Polly Dawkins:

Got it. A number of questions came from a previous session and have come up again. I don't know if they're related, but about xerostomia or dry mouth in Parkinson's, is that related to the gut and all, or is that completely separate? Any thoughts on dry mouth and Parkinson's?

Cherian Karunapuzha:

Same thing whereby the phenomenon of damaging those nerves can do the opposite effect in terms of not excessive drooling, the opposite, you have a dryness of mouth, two, the same angling or posture of your mouth and opening mouth creates it such that the saliva can no longer coat the inside of your mouth. It's always draining out to where people say, well yeah, I drool and yes, I'm parched all the time. Seems like they're opposite ends, but it's happening in the same person because it doesn't stay within the mouth long enough to keep the mouth wet. Number three scenario becomes where medications, there are several medications which can impact and cause dryness of mouth, not just the Parkinson's meds, there are some Parkinson's meds which tend to do that. Like what we call the anticholinergic medications like Artane or Cogentin or the amantadine like medications, like good old amantadine or GOCOVRI or OSMOLEX, these medicines, which can dry out your mouth as a side effect, but also other medicines which you use in other elements, which may be related to your non physical parts of

your disease. For example, your bladder, as your bladder, you start to get a lot of urinary frequency. A lot of times you get put on bladder medicines to suppress that. The effect of this bladder medicine also has the same effect in the mouth and in your gut. This is why, at the cost of improving bladder, you dry out your mouth and you constipate yourself.

Polly Dawkins:
So complex.

Cherian Karunapuzha:
Yes. And so, when we pick and choose medicines to treat bladder issues, we have to be very careful to where we are not messing two other things up in that process.

Polly Dawkins:
We have just about three, four minutes left, really three minutes left. I wonder if we could take a step back and sort of summarize the key takeaway points that you would like folks, a couple of strategies that they could do to feel better in their whole GI system immediately.

Cherian Karunapuzha:
First and foremost, it's extremely common. It happens in about 50, 60% of Parkinson's patients, about 25% of these patients get it way before they even first develop their Parkinson's. So, it's something they have to battle from the very beginning. And so, first and foremost, dietary changes where you're incorporating more fiber and or juices, which tend to create more water absorption, like the dry fruits juices, like prune juice, et cetera, which help you form bulkier stools, second, incorporating a daily laxative and water whatever that would be, and how much of the dose that works for your gut, a little bit to loop your gut daily so that your food goes down like sludge every day, making sure you avoid certain food items, which make your stools very pasty like nuts, peanut butter, just a lot of bread and nothing else. These are things which make it pasty. And so, you don't have big, large bowel movements.

These are the three things which you wanna incorporate from a day-to-day basis. And number four, along with the daily exercises, which incorporate core muscle exercises, which help with contractivity. If you're already experiencing severe constipation, you wanna unplug yourself, including enema, first before you incorporate a daily strategy. And number five, there are specific prescription medicines we would use in such scenarios. If your over the counter medicines don't work, and many times either your Parkinson's specialist, if they're comfortable prescribing it, or your gastroenterologist will usually prescribe it. And there's several of them out there like Amitiza, Linzess, prucalopride, there are several ones which we can use to help promote gastric motility.

Polly Dawkins:
Terrific, such helpful information and great strategies. Dr. K may I ask you one last question?



Cherian Karunapuzha:
Please.

Polly Dawkins:
When I invite you to come back to speak on another topic, which topic do you feel that is misunderstood and we really need to dive into that will help our community?

Cherian Karunapuzha:
One such is hallucinations and when and where it happens is, there's a lot of misconceptions. There's a lot of taboo associated with this topic. I think the word needs to really get out as to when and where this actually starts and how effectively we can treat it as well.

Polly Dawkins:
Super, let's do that. Let's make a plan.

Cherian Karunapuzha:
Of course, I'm glad to help.

Polly Dawkins:
Thank you so much for being here with us today for sharing your really helpful explanation, simple strategies that will help everybody improve their quality of life and their quality of their medications working and their gut health.

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