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Managing Digestive Disorders Using Functional Medicine Approaches

Narrator:

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Mr. Troup:

Hi, I'm John Troup with ReachMD today talking about the Functional and Integrative Medicine Series, and today we're focusing on digestive disorders, digestive health, gut function. And joining me today is Dr. Vincent Pedre with the Pedre Integrative Health Clinic in New York City. Dr. Pedre is a board certified internal medicine specialist. He's board certified in functional medicine and is the author of great new book called *Happy Gut* published by HarperCollins.

Dr. Pedre, thanks for joining us today.

Dr. Pedre:

Thank you for having me, my pleasure.

Mr. Troup:

So, recently, more and more people are showing an interest in the use of probiotics, prebiotics, as an attempt not only to keep the gut healthy but also to help address better management of digestive disorders and even some of the other complications, things like IBD and IBS. Can you give us a little bit of your perspective and what you're seeing in patients presenting these days and your approach in using probiotics and prebiotics to manage these patients?

Dr. Pedre:

Yes, let me first start with saying that I think we're very tip of the iceberg in understanding how probiotics and which probiotic strains can be used for different things. There are certain combinations that have been researched, for example, like VSL#3 for ulcerative colitis. It reduces the frequency and the duration of flares, but still, it's very wide open in terms of the amount of research we still need to put into understanding how different strains can influence our physiology, anywhere from affecting skin rashes, eczema, to anxiety and depression. And sometimes it may be a combination of probiotics, but I've seen patients with IBS with constipation improve just by introducing a probiotic, and it could be a Bifidobacterium-only strain or it could be a combination of Lactobacillus with Bifido and strep thermophilus, but it seems to be very patient-tailored, so if one probiotic doesn't work for a patient, it doesn't mean that a different probiotic, a slightly different formulation, is not going to work. But then we have the case of SIBO, and even has seen a SIBO (see-bo) or SIBO (si-bo), small intestinal bacterial overgrowth, and that has become a huge problem, and for patients that have that, probiotic might actually make their symptoms worse, so you have to think about each case separately and what might be appropriate for them.

Mr. Troup:

And we know from really some really compelling and great work in the Human Microbiome Project, for example, there's some great new insights on the role of probiotics, specific probiotics and prebiotics. But for this question, let me separate the role and the value of prebiotic and probiotic, and let's start with the prebiotic first. What do you think about starting with a prebiotic first as opposed to a probiotic to actually address the underlying issues of maintaining gut health since the prebiotic can also help proliferate positive bacteria? Is that something that you use in your clinic?

Dr. Pedre:

We definitely use this. And when you're talking about prebiotics which are short-chain carbohydrates and fibers that feed the good

bacteria in the gut, you're talking about food also. It's not just a supplement with FOS, fructooligosaccharides. It's about the food that we're eating. There are prebiotics in Jerusalem artichoke and asparagus and dandelion greens and onions, garlic, so really I start with looking at a person's diet and then figuring out what type of diet is going to be good for them. So, we know about the low FODMAP diet, and that diet seems to do well for a lot of people with IBS. Now, in the low FODMAP diet, 2 foods that are high in FODMAPs are onions and garlic, so they are 2 foods that I mentioned that are high in prebiotics. So, like anything else, a prebiotic we think of as a good thing, and it is; it helps the good bacteria in the good proliferate and take root; but too much of a good thing could be detrimental at the same time, so it has to be balanced. And you probably heard of people trying these resistant starches and supplementing with resistant starch, which are prebiotics, but too much of that is going to cause a lot of gas, bloating and discomfort, so it's kind of you have to keep it under control. But I usually, depending on the case, may start with a probiotic, working on the diet, introducing prebiotics slowly. So, what I've learned is that prebiotics, they are great, but you cannot throw a lot of them at them all at once. You have to slowly phase them in to the diet.

Mr. Troup:

Is that particularly true, though, of the high fermenters? I know, for example, that the Great American Diet and the Great American Dietary Experiment have been kind of plagued with the use of poor-quality carbohydrates, but more recently, better-quality carbohydrates like milk oligosaccharides, 2'-Fucosyllactose, for example, and the FOS, fructooligosaccharides that you talked about, are higher quality, have moderate fermentation. Is that a good starting point too to help avoid some of the complications of high-fermentable prebiotics?

Dr. Pedre:

That's definitely a better starting point. And again, the American diet is very high in simple starches that break down into sugar, so you're not just feeding and controlling bacteria populations in the gut, but by the way that you eat, you're also affecting the population of yeast, like candida, that takes habitation in the gut.

Mr. Troup:

Now, it is the really poor quality of the diet leading to fundamental problems in the gut, and more and more we're hearing about this concept of hyperpermeability or leaky gut. Can you shed some light for our listeners and practitioners on really the issue of leaky gut and how to address that with better nutrition and nutritional profiling?

Dr. Pedre:

Well, when we're talking about leaky gut, I'd rather think of it as gut hyperpermeability. What we're talking about is what's happening in those connections between the cells that line the intestine, particularly the small intestine, the colon, those tight junctions, and they're controlled by a gene called zonulin, and this zonulin protein will reduce the connections between the cells so it can cause hyperpermeability. And so we know that certain things can affect zonulin secretion. For example, gliadin, the protein in gluten, has been shown to increase zonulin, which then basically increases the permeability of the gut. But we also know that overexposure to antibiotics, medications like anti-inflammatories, nonsteroidal anti-inflammatories, also stress, all these things can alter the flora and can increase gut permeability.

The biggest thing is that then there are bigger molecules that can get through, so you get partially digested proteins that should not be getting through the gut barrier coming into the bloodstream into that first part, the space right after the food enters through the intestines, and that's where our immune system is waiting. The dendritic cells analyze everything that's coming through, and it causes an immense immune reaction. We also know that gram-negative bacteria, they have a lipopolysaccharide, LPS, that can get through, and that is a really potent stimulator of the immune system. So, basically, the importance of understanding gut permeability is that it is the greatest source of inflammation, one of the greatest sources of inflammation for the body, and it causes systemwide inflammation.

Mr. Troup:

So, some of the recent literature in prebiotics and probiotics show some demonstrable improvement in really this leaky gut issue. One is, are these carbohydrates like 2-FL that can provide barrier protection and help recolonize the gut. There are new probiotics or probiotics even that have been around for a while that have also shown to produce some of these compounds called bacteria since that also provide some barrier protection and help avoid or recover the leaky gut. Particularly as it's related to probiotics, are those opportunities that practitioners can select and integrate into their treatment regimen?

Dr. Pedre:

It's absolutely an essential part of the treatment regimen to use probiotics and prebiotics in rebuilding the gut flora, because we know that the healthy gut flora helps maintain a healthy gut permeability and it interacts with our immune system in a way that keeps the immune system primed but at the same time keeps it from being overreactive in its presence all throughout the gut lining.

Mr. Troup:

Gut diversity has been shown to be pretty important and that basically by maintaining a diverse microflora of the gut, that helps contribute to maintaining a healthy gut. What's the best way in your experience to bring about that diversity? Is it by using multiple strains of probiotics or get one that works and combine it with a prebiotic to help proliferate the right profile? What's the best approach there?

Dr. Pedre:

Let me reference a recent study that came out where they looked at whether giving patients, say, a broad-spectrum probiotic, if those particular strains would seed the gut, and what they found was that the strain that did seed the gut was a strain that the person was tested to be deficient in or was not present in their stool analysis, but if there was something that was already present, it didn't really stick around for that long. And I say that because ultimately, the way to create a diverse microflora is to basically a diverse diet, and I like to think of it as eat the rainbow. Don't have a monochromatic diet where you're eating a lot of bread and rice, pasta. You have to think about eating all the different colors available between vegetables, berries, fruit. That's going to give you the wide range of nutrients that are necessary for sustaining a diverse microflora, which is what we know is associated with good health.

Mr. Troup:

Right, so you mean high-fat diets and cheeseburgers and French fries every day is not diverse enough of a diet to bring about a diverse gut, right?

Dr. Pedre:

Not diverse enough, and it's going to build a microbiome that will support obesity. So, there was a study done in mice where one group got fed lard and the other group got fed a diet high in Omega 3s, both getting about the same amount of fat in the diet. The lard-fed group gained weight. The Omega 3-fed group did not gain weight. And the interesting thing was that if you did kind of like a stool transfer between the mice, the mice that were Omega 3-fed, if you gave it to the lard-fed mice, it then partially protected them from weight gain from the bad diet by having the Omega 3s there. So again, very key -- and I'm glad you mentioned those fats -- because we have to think not all fat is the enemy, and good fats are going to help build a healthy microflora that's going to help keep us metabolically resilient.

Mr. Troup:

Now, more and more clinical investigators and scientists in this area are looking at the gut as really kind of a neuroendocrine site of activity that can influence other metabolic processes in the body, and often times we'll hear people today talking about gut-brain axis and the influence, gut-liver axis and the influence that the gut and the pre and probiotics have. Do you have some insights in that kind of neuroendocrine concept of what you just described and why the gut is so important?

Dr. Pedre:

What is really fascinating is that we know that a lot of neurotransmitters are being made by gut bacteria, for example, like serotonin, but also dopamine and norepinephrine, and depending on the strains that are there, it can increase your anxiety. There's a type of Lactobacillus that actually produces GABA and it helps lower anxiety. But the other thing that I think is really key in this gut-brain interaction is this whole microecosystem that's going on in the colon between the bacteria that ferment the fibers and produce short-chain fatty acids like acetate and lactate that then become the food, the prebiotics, for another group of bacteria living in the colon that are called the butyrate producers, and they produce this short-chain fatty acid known as butyrate, which is the primary energy source for the colonocytes, the cells that line the colon, but it also gets absorbed and crosses the blood-brain barrier. And in the brain what it does is it stimulates a secretion of brain-derived neurotrophic factor, so it has epigenetic effects influencing memory and neuroplasticity. So, really fascinating, and I think, again, I think we are at the tip of the iceberg in understanding how we can influence all of these different strains, but we do know that there are certain strains of Lactobacillus at lower anxiety, for example.

Mr. Troup:

It's fascinating. This is John Troup and part of the ReachMD Integrative and Functional Medicine Series, and today we're talking about Managing Digestive Disorders Using Functional Medicine Approaches, and with me is Dr. Vincent Pedre of the Pedre Integrative Health Clinic in New York City.

Dr. Pedre, you've been talking a lot in the course of this discussion about some of the selection criteria and the outcomes. What could you recommend or describe to our practitioners today on selecting an appropriate probiotic that would be specific to and have a positive response for our patients? What's the criteria that you use in identifying and selecting a probiotic?

Dr. Pedre:

Well, first, I want to make sure that person does not have an underlying condition like SIBO, and you also have to think about something called SIFO, which is small intestinal fungal overgrowth, so they could have bacterial overgrowth or they could have fungal overgrowth. If they have either of those, you have to be careful about the strains you choose and the strength of it. So, we know that probiotics

come in all different sorts of strengths from 1 billion to 5 billion to 10 billion to 100 billion in 1 capsule, and we also know that there are other types of probiotics, so for example like *saccharomyces boulardii*, which is not a bacteria; it's a favorable yeast, did a lot of research on that. Sometimes that could be a better first choice for someone that you know has a yeast overgrowth before you start introducing probiotics and prebiotics, which could make them feel bloated. You have to think about the possibility of having die-off in patients. If you have someone who has inflammatory bowel disease, you may be choosing to prescribe VSL#3 for them, but even VSL#3 comes in different strengths. I think it's always safer to start at a lower strength, and once you know it's tolerated and it's having a good reaction, then you can start going up on the strength, but if you have someone who comes in and just had a gastroenteritis and you know that their gut flora has been completely altered, you might want to hit them with a higher strength, 100 billion CFU probiotic that has a broad base of *Lactobacillus*, *strep thermophilus* and *Bifidobacterium*.

Now I'm going to throw a different loop in there because we've been using a lot of human-derived probiotic bacteria, bacteria that we know that live in the gut, but we also have soil-based organisms in the gut. So, sometimes I will use a soil-based probiotic in someone who has gotten better, a patient with IBS who has gotten better but still could get a little bit better, so I'll test them out on a soil-based probiotic, and a lot of times that makes the difference. And it's one of those things you can't really measure, but the patient comes back and tells you. "I can just see that my poop is better and that I just feel better overall," so, you have to think.

And the other place I want to mention is when someone has been on antibiotics. So, I'm always worried about that, especially so many doctors prescribing Augmentin, Cipro, Levaquin. I mean, these are bombs to the intestinal flora. They not only wipe out the infection -- and I believe in antibiotics because they save lives -- but you have to think about, okay, what is the consequence of me doing this to this patient? Are they going to develop... And I'm the one, I see the patients that come in because they have chronic yeast infections as a result of 2 or 3 antibiotic courses that were used to treat a sinus infection. So, you have to think about if you're prescribing antibiotics, you might want to prescribe *saccharomyces boulardii* at the same time, which is a yeast, so it won't be killed by the antibiotic to help maintain the integrity of the gut lining and then follow it with a broad-spectrum probiotic, and again, working on the person's diet, because I think taking a probiotic and not working on the person's diet and trying to get them away from refined carbohydrates and the monochromatic diet, I think you're not treating the whole person, which is so important. You have to look at the whole picture.

Mr. Troup:

Now, other than the obvious patient that presents with some indication of IBD and IBS, are there other conditions of patients that you see that don't meet the norm that you would suggest to a practitioner that they consider some type of use of probiotics or prebiotics as well as dietary adjustment?

Dr. Pedre:

You have to think about all sorts of issues that might be gut related whether or not the patient is having gut issues, so, for example, asthma, which is not located in the gut but it's in the airway. And when you look at the embryology, both the airway and the digestive system develop from the same type of cell, so it makes sense that they're somehow interconnected. In Chinese medicine the airway and the digestive system are linked, so somehow they had the intuition to realize that these 2 systems were integral to each other. But also, skin rashes, so like eczema, maybe even psoriasis, these are things to think about maybe this person needs a probiotic to balance out their gut health, but something as seemingly unrelated as an autoimmune disorder like autoimmune thyroid disease, which we know is connected to the gut. And patients, a lot of thyroid patients in the US, 90% of them, have Hashimoto's, which is an autoimmune response to certain thyroid proteins like the enzyme thyroperoxidase, but we know that these patients tend to develop a reaction to gliadin, and as a result, they can develop antibodies to tissue transglutaminase.

Well, tissue transglutaminase is located in so many different parts of the body, including the interstitial space in the thyroid, so if the body becomes sensitized to that, then it starts attacking the thyroid, and again, you get this autoimmune thyroid disorder, but you have to realize that it actually started in the gut and the important role that the digestive system plays in keeping our immune system in balance, and that's where probiotics and prebiotics come into play, because the good bacteria are so important for keeping our immune system functioning, not overactive, not underactive, just right.

Mr. Troup:

And part of what you're describing is the power of functional and integrative medicine approaches and clinical insights in that with the approach of functional medicine, it's possible and important to manage the cause and underlying issues that might lead to disease rather than trying to address the disease alone. Can you give us some insights and maybe even some recommendations on where practitioners might go to learn more about this total patient care, get to the root cause of issues, where they could have a better understanding of then, when and where and how and with what probiotic and prebiotic care could be used?

Dr. Pedre:

One thing to say about it, about functional medicine, it's not trying to replace Western medicine. What it's doing is it's really

complementing this approach, if you can combine both of them. So, the place to go is the Institute for Functional Medicine, which you can find online at functionalmedicine.org, to learn more about an amazing training program that walks you through all of this biochemistry, and that's really what it comes back to is biochemistry.

So, I was at a conference recently where a doctor came on and he was being funny, and I know that we joked about it also in medical school that, "Oh, I don't need to know the Krebs cycle." Well, guess what? If you study functional medicine, you find, yes, you need to know the Krebs cycle. You need to go back. It's almost like relearning all of the biochemistry that we knew, because that empowers you to really help the patient to heal. Whereas Western medicine is treating symptoms, functional medicine is looking for root cause, looking for ways that we can complement treatment, ways that we can optimize a person's health, whether it be through the digestive system, through other supplements, through figuring out vitamin deficiencies. This is key and critical. So, to the Western doctors out there, you do need to know the Krebs cycle, because if the Krebs cycle is malfunctioning and that's the energy production cycle in the mitochondria in our cells, the person is not going to feel well. And we know how many people do we see with fatigue? Anything that is a chronic disorder, Western medicine really has evolved extremely well to deal with acute health issues. Anything that is a chronic disease, it really doesn't do so well, and that's where functional medicine comes in with diabetes, cardiovascular disease, health issues, asthma, allergies.

There is a different way to approach patients that really takes into account the whole person, and I think that's what doctors went into medicine for initially, and often I think... At one point when I finished my training, I thought, before I got into functional medicine, I thought to myself, "Is this it?" I went through 4 years of medical school, 3 years of a vigorous internal medicine residency at Mount Sinai here in New York, and what I've learned to do is think about what medication I can prescribe each time a person is walking through my door, and I thought to myself, "Is that really it? Is that how we're supposed to care for people? Are we not supposed to inspire them to eat right, to lose weight, change their lifestyle, to manage their stress?" And that's what functional medicine is all about, is dealing with every single aspect that affects a person's health, but you see people really... I mean, someone just told me recently that the number of searches for functional medicine has gone up to a million now, and several years ago no one was talking about functional medicine. Now that people know, I think patients are frustrated. They are tired of just being given medication without being given other options on what they can do to live as healthy as possible.

Mr. Troup:

Well, great. These are really important clinical insights in managing digestive health and digestive disorders. This has been part of the ReachMD series on Functional Integrative Medicine. I'm John Troup, and joining me today was Vincent Pedre, integrative and functional medicine specialist in New York City.

Dr. Pedre, thanks very much for joining us today and providing all your great insights and writing a great book, *Happy Gut*, by HarperCollins. Thanks for joining us.

Dr. Pedre:

My pleasure. Thank you.

Narrator:

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