Hidden Sources Of Neuroinflammation And How They Are Connected To Mental Health Transcript

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Introduction to Neuroinflammation and Vibrant

I like to tell my patients this is like, you're on a train. You are on the neuroinflammation train, and this test is gonna tell me how you got on that train and what direction you are headed.

And the disease is at the end of the track. If I know how got you on train I can correct course and put you in a different direction to be able to prevent you from getting to wherever that end point is.

That's the point, right? Like get to it before it gets to you. This is Dr. Talks. Hey everybody, Dr. Diane here again. Welcome to another episode on our microbes and mental health summit.

I'm so excited about our next speaker, dr. Kim Bruno. She's part of vibrant America, vibrant wellness company, and they are my favorite lab company on the market.

So dr Kim's going to talk to us a lot today about vibrant, about them as a company about how we can use them to help diagnose neuroinflammation, root causes of inflammation, and how this is all connected to mental health.

So welcome to the summit Dr. Bruno, thank you for coming. Thank you so much for having me, I'm excited to be here. Ditto, ditto. Well, let's jump right in.

I just kind of lay us the land. We're going to connect all this for people to lab testing, to what to look for to really get to the root causes. But let us start with who is vibrant?

Who are you? How is Vibrant really serving the community of people with mental health? Can you just give us a lay of the Sure, absolutely. Yeah, so I am a functional medicine provider.

I've been in practice for like 15 years. i've Been working for Vibrant for at least two years now, but have used them in my practice, for a really long time.

So Vibrant is a, it's a lab company, But it is really a technology company because they use the state-of-the-art technology so that we can get really accurate results.

And that, as a provider, Dr. Diane, is really important for us to have this accuracy and reproducibility and reliable testing.

What Neuroinflammation Is and Why It Matters

In addition to that, because they have such a unique technology, they can offer a very comprehensive test and a wide variety of tests. So where before you maybe had to go to one place for mycotoxins and one for looking at your neurological inflammation.

Now we can do all of that from one company and it's exciting to get this really great lab report and be able to say, okay, we've got these microbes and we have this toxicity and this inflammation and autoimmunity all in one really nice bundle to be to give those root causes to the patient without having to kind of piecemeal it together.

Yeah, thank you. That's so helpful. And one of the things I actually just want to say before we get into the meat of this is that I think what you guys have done so well over there, like one many things is really giving the lay of land as far as from a user experience.

Like when I go over the tasks from Vibrant with my clients, the way it's formatted to explain and be understood and not be confusing for clients. It's just you guys have put so much thought into how it's actually delivered and really taking some of the pressure off as a clinician to like hand this test and a client be like, this is so crazy.

I don't understand any of it. Exactly. What is this being? Because we're looking at really complex markers and it is nice because they always have a summary page.

They always some really great lab comments of what does that mean? What does it related to? So you can help to pull it together. Exactly, exactly. So let's then go into neuroinflammation.

We have a couple talks on this, but I want to just orient because some people might not have heard those talks. What exactly is neuro inflammation and how does somebody become neuro inflamed?

Would it tell us about that process? Right, right. So, you know, neuroinflammation is very much like it sounds, it's an inflammatory process that's happening in the neurological system.

How that might present to a patient, they maybe are thinking that they have brain fog. Right? Or they have cognitive decline, or they are just having trouble finding the right words, Or, they get really bad headaches.

All of those things, all of these symptoms could be because of this inflammatory process or sequela that is happening in the brain. Now, that's one thing to name it neuroinflammation, but why is it there, right?

Inflammation is there for a lot of different reasons. Initially, the body sends out this inflammatory cascade as a protective mechanism to the buddy. It says, oh no, there's an alert.

Let's try and fix it. Just like if you would sprain your ankle, your foot gets, or your angle gets inflamed, and it's a repair mechanism. But what happens is if that trigger goes on and on, and without being resolved or out, without been identified, then we cause chronic damage or chronic inflammation.

And so really what we're looking for is that root cause. It's like, yes, we can look at some of our autoantibodies to determine, Yes, it's an inflammatory cascade versus maybe an autoimmune cascade or maybe something being driven by blood sugar or whatnot.

then what do we do with that information? We figure out why was that inflammatory cascade kind of kicked off in the first place? And so then we want to look for microbes or toxins or other types of triggers that could be really flooding in to that neurological system.

Yeah, thank you for that because I think it's a really An unfortunate thing that so many people stop at the autoantibodies, you know, it's like we get the, autoimmune diagnosis, we have some auto antibodies and it is like, okay, great.

So whether we're going to do prednisone or something like that, like something that is not going really solve the core fundamental reason. Yeah, so now what?

So from a testing perspective, two different ways we can look at what you've said. We have autoanibody that are showing this underlying inflammatory situation and You know, just to remind everybody, like we've talked in other lectures about how inflammation and neuroinflammation, how it can get into the brain, and how we can actually disrupt the brains structures, How it change our neurotransmitters.

So all these links that we keep covering as far as the links to mental health disorders.

Testing Autoantibodies and Blood-Brain Barrier Damage

From the standpoint of these routes, right? So talking about these roots and we're talking, say, in this example, these autoantibodies, this autoimmune condition, and saying that there's even a further root cause than that that's

driving an autoimmune condition that could be in this example, part of the neuroinflammatory picture.

Give us a sense from like what you guys do, like, what tests people should be asking their clinician about if they're lay people or if their clinicians listening, You know, from both aspects, I think from the autoimmune aspect, because those are good markers to track progress.

But then, of course, also the root cause. Can you give us a lay of the land of like what people should be thinking about from a testing perspective? Absolutely.

Absolutely so. One of the big things is going to be microbes because, and that's obviously one of big focuses of this summit is to looking for those microbes.

So is it a tick-borne microbe or some other type of opportunistic infection? Is it mycotoxin? Are those part of that underlying cause? So making sure that we have really good testing and comprehensive testing.

to make sure that, you know, we don't just look for one Borrelia species, right? We look at all 17 of them because if we miss one, if one's negative, it doesn't mean that the other ones are going to be negative.

So we're going be looking collectively at Lime spirochetes are also the co-infections and other types of opportunistic infections, mycotoxins. But then we also have this whole realm of just toxins in general.

Unfortunately, we all live in a toxic soup, right? We live on planet Earth. We can't leave planet earth anytime soon. So we do have to learn to figure out how full is our bucket.

Some people have the ability to, you know, genetically have really big buckets and they don't overfill as much, but some people smaller buckets or because of genetically they get overloaded very quickly.

So understanding what is in our environment and testing for it, not just saying, I don t spray Roundup at my house so I must not have any glyphosate around me.

Well, you may live within a mile of a golf course or there might be a farm down the street or same with plastics and whatnot. So we really need to get a baseline of what is your total body burden from all of these aspects and then be able to make that determination of could those be those triggers and then monitoring along the way because, yeah, you have the auto antibodies, now we know what the body burden is.

And then collectively, we can work through treatment plans and get multiple data points to be able to say, oh, what we cleared and we dealt with this tick-borne infection and look, it helped to clear this neurological inflammation auto antibody.

to be able to improve. And that's how we track. We don't just track and say, you know, do you think that you have less brain fog? Like, yes, that is important, but we also want to look and see that process is no longer happening in the body.

Yeah, there's one study that I've seen that shows that auto antibodies actually show up seven years prior to having symptoms. And so, you know, I haven't seen a study, that's like shown the reverse is true, but presumably it could be, right?

That we lose, just like we have auto-antibodies before we had symptoms, because it takes a while. We might, lower our symptoms before our antibodies are totally gone, presumably.

So it's just good to be checking both things. we want the labs to look good. Absolutely. And we talked a lot about on this summit already, we've talked about leaky brain and about this body burden picture getting into the brain.

So can you talk a little bit about from the antibodies perspective, then testing we can do that testing people should be looking out for to make sure their auto antibodies are normal and they're back to their baseline.

What can people do for that? Right. So our test is called the Neural Zoomer Plus, and we've got 47 different autoantibodies, anything that comes from the neuroinflammation and the brain autoimmunity.

We're also going to be looking at markers of demyelination and blood brain barrier disruption. That's actually a really big key, especially if you're talking about this gut-brain connection, because if have a leaky gut, you have leak brain.

There's this really fascinating research, and I know you know, you've read it about like within 30 seconds of a blow to the head, the intestinal permeability, intestino gut lining is open and permeable.

So it's like it works both ways. And we need to know that because if the brain is leaky, If we know the gut is leaky and then we do the auto-analyze and we the brain is leaking, well now all of a sudden the central nervous system is no longer sitting at this like seat of privilege behind this barrier and the immune system can see it and that's a problem because the system doesn't normally see.

So it can then be heightened to say, what's that? And then of course we get the big sequela after that. Knowing, you know, if you have leaky gut, or if know you've got issues, being able to test to see what are your autoantibodies for the blood brain barrier to be able make those connections is important.

And it's not just saying, okay, oh, look, we have them.

PFAS Exposure and Total Body Burden

Some of those markers have very specific, what we call molecular mimicry, where the antibody gets confused, and then we can look and say, a cross reactive with gluten per se, or this one is cross-reactive with aquaporins and so gives us as providers much more targeted treatment action items.

to be able to help to seal the barrier while we're sealing the gut and be to put that brain kind of back in protection behind the barriers. So knowing that gives us just the more power to get a better treatment planned.

Then on the flip side, once we know that and let's say we the barrier is open, and then we also see, oh my gosh, we have these levels of sacubatris that we're looking for, that can become neuroinvasive or to be sex or whatnot, then, action items that you can take there.

Collectively just pulls the whole picture together for the patient. I like the word you use there, action items. I think that's what's so great about testing is it's very clear action item, right?

It takes the guess out of it. Yeah, we're not looking to say, like, this is, oh, you have this marker, gloom and doom, or it is diagnostic of this cognitive issue or this kind of disease.

How I like to tell my patients is like, you're on a train, You are on the neuroinflammation train. And this test is going to, tell me how you got on, the train and what direction you are headed.

and the disease is at the end of the tracks. You're not there yet, but that's where we're going. It may be seven years before we get there. Like you mentioned before, before you get those symptoms, But what our goal is through those action items.

If I know how, I can correct course and put you in a different direction. to be able to prevent you from getting to wherever that end point is. And that's the point, right?

Like get to it before it gets to you, so. Well, and I think that the other great thing about doing the, you know, the auto antibodies in addition to the root cause is one of the things I've seen, like I have a patient that I'm going to change a couple details or just make sure she's super protected, but she has one autoimmune marker that this particular marker when we first, it's supposed to be less than one, and she has it at 170 when first started working together.

And now, we keep seeing it and we've been working it together for about a year and a half, so we know we're on the right track. I think that's a cool thing about using some of these markers that are, say, not diagnostic for the root.

But they are diagnostic for telling us, like, what we're doing as far as fixing the root is actually working. Look at the change, keep going, those kind of things, right?

Absolutely. Absolutely, yeah. What else do you feel like people from a symptom perspective, from like a total body burden, What symptoms should they be looking out for to say like oh my gosh, my body burn and my cup is overflowing.

I'm definitely like I am toxic, I got to look out this, and I gotta do testing. With what symptoms are people typically getting? The crazy thing is it's like it in all the systems right and depending on the person these toxins find different homes if you would say like right so sometimes some common places where these symptoms will tend to find a home is going to be like in the reproductive system so you're probably you have a lot of endocrine problems if probably in the liver, people who maybe eat really well and don't drink alcohol and they end up with fatty liver disease.

We talked about a lot of the issues with the brain. There also could be issues in cardiovascular system, irregular heartbeats or arrhythmias, increased blood pressure.

So really across the board, you're going to see a lots of symptoms, but patients do tend to them in multiple systems. It may not be that they just have irregular heartbeat.

They may have an irregular as well as eczema, aswell as brain fog and fatigue. And they're just kind of like, I feel really crummy, right? I don't feel like myself anymore.

I just, I can't make it through the day. I just have all of these symptoms really all over the place. Those are the patients that tend to have a big burden and it doesn't mean that it's always a plastic burden or always a PFA burden, or a microtoxin burden.

It could be a combination of all those, but we need to test to look because those are the people who tend to have the burden." I think also people, they say, I'm very sensitive.

I can't walk into a perfume counter at Macy's. You know, be around at my kid's school because of the cleaning supplies. They are just very, very That's a pretty good indication that your bucket is full because if anything outside of your normal realm can trigger you off, then that means that we need to look to try and lower that burden.

Yeah, that's really helpful. I think that perfume example in particular, so the straw that broke the camel's back, your cup is already full. So now a little bit is gonna just send you into symptoms.

Yeah I love that for people as a likely diagnostic, you gotta look down this track. You said something that I wanna go into further, the PFA, The Forever Chemical.

We wanna make sure we spend some time with this because this is one, it's like BPAs get a lot of press, glyphosates get lot a press. But there hasn't been a lot of press around this one.

So let's talk about this chemical. Right. PFA stands for either per or polyfluoroalkaline substances. These are just really long chains of these carbon and fluoride bonds, which are very, very strong.

What that does when there's something with a strong bond, then it doesn't break apart or dissipate in the environment or within our bodies which is why it's called a forever chemical.

So of course everyone's like already their ears are perking up they're like that sounds really bad. Well the problem is it they are also used throughout multiple industries kind of everywhere.

So anything that's stain resistant, anything, that is non-stick, or anything has water repellent, so that tends to be a lot of the products, right? The other thing is like any types of adhesive you put like a Band-Aid on or any type of food packaging.

So what did a lots of people start doing in 2020? Getting a lotta takeout food. All of that is coated in this kind of non-stick chemicals. And then if you put hot food in there, there's more likely to have transfer.

There's two things that really, or actually three things, but as far as food goes, two thing that will really help to increase the transfer, one is heat and the second one, is fat.

So if all of a sudden take a food that has high fat, which a lot of takeout food does, that's hot, and you it into this surface, you're going to get that to come into your food, you're going to bring it into our body.

And then because it has such a strong bond, it really bioaccumulates in our systems and then has that same toxic kind of body burden overload that we talked about with other types of chemicals, the endocrine disrupting the brain issues.

It really can affect multi-systems within your body, Now, Dr. Diane, you and I are both in Colorado, and so one thing that I was shocked about was the firefighting foam that they use for all of the wildfires here is packed full of PFAs.

And there was a recent study out that 100% of our drinking water here in colorado has PFAS in it. It's shocking. I do think it's going to start to get a lot more press.

There was several studies or studies and articles just recently in, you know, like the Denver Post talking about that point of the drinking water or even like The Washington Post and the New York Times are starting to pick up on this like, oh, maybe these things aren't such a great product to be just put out there, especially since we don't know how art is going So understanding what your body burden is, up until recently, we haven't been able to test for them.

testing for PFAs was really exclusively for people in industries like firefighters. It wasn't accepted or just available to the masses, but now we have the ability to test for it so that we can see what your body burden is and then you can start to mitigate.

Maybe you change your cooking, you know, cooking pans or you stop using microwave popcorn bags or stop getting as much takeout or, You know you filter your water more.

There's lots of things that we can do, but you got to know what your baseline is and then be able to track it from there. Yeah. Knowing baseline and being able to make sure that treatment progress is working, I think is so easy.

So we'll say good care. Test out this really goes a long way.

Comprehensive Tick-Borne and SIBO Testing

One simple question that I thing people might have is just when it comes and you're talking about non-stick cookware, have you seen that the PFAs are even in like the green pans?

So like, the Teflon-free pans, do those actually have PFAS in them? So it depends on the pan. So just Teflon-free means that they could still put a lot of other stuff in there, but if you're using like a cast iron skillet or the ceramic coated cast-iron skillets, those ones won't have the PFAs in their.

But it is a question to ask or when you go and ask those companies because sometimes they can be a little bit sneaky. right? They'll say, oh, it's Teflon free.

And we're like, great, no Teflon. But they're, like oh but we put this other PFA in there. They did it all years ago with BPA, right. This is BTA free, but it was like had BPO in it.

Right. That's not any better. It actually might be worse. Yeah, that's exactly right. That's and I actually even learned that with some of even like the aluminum free deodorants that you know you get and it's like and looking at there's other things like BHT and like that.

So really bad chemical and often times if it is not aluminum, you have this other thing. Right, but they do those like they put the catchphrases like, the things that people are looking for teflon free, aluminum-free, this free and so it like if you do a little bit of research to really figure out like, okay, what are the pans that I can use?

What are, What is the clothing I Can use. And sometimes there may not be a good alternative, right? Like there's not a Good alternative microwave popcorn bag.

Like you just need to air pop or stove top pop your popcorn. So, you know, there might be those choices in there too, that you got to make. Yeah. And then symptom wise, like from a PFA standpoint, have you seen that there's any specific symptoms that go with, say, an elevation of this chemical in the body, or is it much more like general total body burden, the symptoms you've already described?

Yeah, very similar to total body burden. However, there is some research that shows that high amounts of PFAS that are inhaled will cause a lot of like asthma type symptoms.

So maybe more breathing or gas exchange problems. They tend to see that more when people are in a situation, like instead of they're getting their exposure maybe from the groundwater, but they are getting exposure because they just put in new carpet that has stain resistant.

you know, products all over it or chemicals allover it. So you usually will either get it from ingesting or inhaling. Dermatological is possible as far as transmission, but less likely.

But anytime you have that chance that it's something that you could be inhailing, you can also really be looking at some respiratory type issues. And I would think then potentially, you know, in mental health world, like anytime we're getting shortness of breath, obviously that can be related to anxiety and that sort of thing.

So I think there'd be potential, overlapping that realm as well. Yeah, absolutely. Absolutely. Yeah. They do say for the nervous system, they do have some risks with like ADHD, hyperactivity, also just kind of memory impairment is part as a big piece of that as well.

And depression and changes in neurotransmitters. That's going to definitely go into the mental health realm of what might bring somebody in initially, but collectively they might be seeing it in other symptoms too.

Yeah, and typically I think with most of the stuff like we know, it's not one symptom. It's a lot of symptoms, right? Right, yeah. And then tying this back to the microbes picture.

So from a micro perspective, before we go into more details on testing and things people can look out for, I want to go a little bit deeper with that.

But before you do that, is there anything beyond neuroinflammation to tie microbes to mental health from your perspective mechanistically that you'd like to share?

What are you thinking? trying to pull my brain together here. Yeah, I mean, nothing in particular. I just wanted to make sure there wasn't a different perspective that you, you know, pondered on and wanted it to add or anything like that.

So I think we really have covered it all as far as it's, connection to inflammation, connections to neurotransmitters, and connections into the autoimmunity.

Those are going to be what I would look at as your kind of main mechanisms of how that might be driving the overhaul picture. Perfect, perfect. And so then let's talk about, I want to talk your guys' tick-borne tests in a little

more detail.

I know you mentioned, you know, 17 species of Pirellia and that's really important because as we know like the conventional tests typically only test for one.

So likely you're going to miss them, right? And, so huge, huge benefit of like doing that thorough of a test. What else from a thorough test perspective are you guys offering that people should be aware of?

Right, so we are offering the most comprehensive test on the market at the least amount of price at least mounted dollars out of the patient pocket, which is really important because if somebody is going to be entering into.

treating Lyme, it's a long road and we don't want to front load and spend all the money on the lab testing at the beginning. That right there is important.

We can do that because of that technology that I talked about at beginning with this microchip. So we're going to be looking at all those different Borrelia species, North American Borrelia species.

European species Asian species to able to really collectively look because people are traveling all over the world. and we have international trade and travel, so we definitely want to make sure that we're addressing for all of that.

And then our co-infections, we are going to be looking for multiple species of each co infection. So we look for, multiple, you know, species, of Fabesia or Bartonella or Anaplasma, So that, We can make, sure again to, be very, very comprehensive in what we, are looking, for.

Additionally, we're going to be doing a direct test and an indirect test. So we do the PCR test, which is your direct tests looking for the actual microbes, but we also do this serology test looking the IGGs and the IgM's.

And that's important because depending on the stage that the patient is in, They may not have a detected PCR, but they have positive serology or vice versa, depending on really what the immune system is doing and how long ago they were exposed and what's happening.

I think it's important to be able to offer the number of species but also the different types of testing so we just have less patients falling through the cracks.

Right? Because there's so often, and you hear it and I hear, it's like people, by the time they get to us, they're like, I've been looking for an answer for 10 years.

Right. I'd been suffering for this long and had been to lots of providers. And it like if you don't, you know, know what you, don' know. If you do not test the right things, You might miss it.

Let's not have those patients fall through the cracks anymore. let's make sure that we can get them that comprehensive testing. So in all aspects, so that they can, get the answers that.

Yeah, and I really want to emphasize that because there is a study out there, I want everybody to hear this, that the first line of testing for these chronic things, especially when it comes to like Lyme disease and Borrelia, which is so related to mental health issues, the 1st line testing conventionally is called the ELISA.

And there's one study that shows that it has a 66% chance of a false negative. Right? So it's like, I know. I'm like what? Yeah. Yeah, that fell off my, it knew it was bad.

But when I found that study, if I definitely had to keep my butt in my chair, and I was just like shocked, you know, That it really was that severe of a poor test.

So I really want everybody to really hear this because I think it is so common. And I probably think we both hear it, right? That people come in and they're like why are you had testing for Lyme disease?

Right. It's negative, Right, So if you've had that before, yeah, do not rule that out. That's very, very important. And the other thing I wanted to make sure that we touch on, because there is a link from small intestinal bacteria overgrowth to actually creating blood brain barrier disease where we get the toxins.

moving from those overgrowth into they actually basically because of that blood brain barrier disease, we can have say mold toxins or Lyme toxins, other toxins PFAs, whatever.

But because we have small bacteria, small intestinal bacteria over growth, those toxins move from the body into the brain more easily. So looking for some of these peripheral things are also really important.

Can you talk a little bit about what you guys do over there to help with SIBO? Yeah, so we're going to be offering something that's called an IDS Sure, where we are looking for that type of those types of antibodies in the blood to able to identify that connection that is going be happening.

So it's not necessarily a direct breath test where were looking at the bacteria, but we were let's say the aftermath, right? What's going on in the blood and then that connection to the brain.

So it's very helpful, again, identifying a baseline, being able to treat, to monitor, be able look at the connections that the gut is making to brain without doing the breath test, but being to do a real simple blood test and being be to look how the immune system is responding.

Well, and the other thing I've seen with that test that I think is so helpful is the ability of it to like make sure somebody's done with their SIBO treatment because if they have the antibodies that your guys are looking for, those markers that you're looking forward the IVF, sure and SIBOS gone, but they still have those positive antibodies, the likelihood is that SIBUO is going to come back.

So it all helps to prevent recurrence, right? So that's one of my favorite things about that. Oh yeah, and if that process is still there, they still may be getting the brain symptoms, the systemic symptoms.

Even if they don't necessarily have like that, you know, typical SIBO symptomatology of that like belly blow and that type of symptom atology, They still could have those aftermaths and they'll still need to be that immune system dysregulation still needs to dealt with.

One, we don' want the SIBo to come back and two, We just want to make sure that we have treated completely that patient. Yeah.

Foundational Gut and Food Sensitivity Testing

I hope that's another I keep emphasizing these points that I really hope people are hearing from you like treat it completely because I think people get so close sometimes to you know being good and then they give up at that last 10% and that Last 10 percent is sometimes like when we feel the best in our whole lives but it's also when We like tie up things in a nice little bow.

So we hopefully don't like get back into recurrence. Right, right. Which is so important because that is extremely frustrating for the patient and the provider when they're like, I was so good and one stressful event in my life like threw me backwards.

And it's because they were in that 10%, right? They were vulnerable. that things hadn't been, you know, tied up to be completely done before. And so then they did end up back, back where they were.

So yeah, we got to make sure we follow it through the end and check all the boxes. Yes. Absolutely. Well, I want to make sure that we've covered everything from a, you know, testing perspective and thinking about the overarching mental health picture and microbes and toxins.

And are there any other tests that you think that, hey, people with mental or people, with large chronic disease

pictures should make they have on their radar is important to do that.

We haven't talked about. Yeah, you know, I think foundational tests with anything that could be causing that inflammation, meant looking at a stool test, looking the gut function, Looking at food sensitivities really at that peptide level can be really helpful.

So those are maybe some more foundational test that we want to make sure those air there because also if we can remove the foods and heal the gut. And there's also a microbiome board.

As far as a tick-borne, you're going to respond better to treatment of the tick borne if you have a better foundation to work from. So just collectively looking at kind of all the boxes within functional medicine, starting in the guy, anything that's driving inflammation, I think are important.

Then you can start to, based on the symptoms, the provider and the patient can say, okay, these ones make sense. After we have those really good foundational tests taken care of.

And like we said at the beginning that, you know, that's a great thing about vibrate is you can do all of that all in one place so that you really can get that consistency and you get the comprehensive testing that.

Yeah, and thank you for that. You mentioned a thread that I'm trying to weave through the summit, because I think it's a really important point, which is I see people get so excited about, oh, it the microbe that's causing the thing, or it is the toxin that is causing thing.

And that awesome. We've got to find those things. You know, I keep saying over and over, and I really keep emphasizing this because of what's important.

I get completely agree with what you said. It's, we also have to think about those other foundational components. We can't get so excited about the microbe, like, yes, test for it.

Yes, tests for the toxins, do all that. But don't be so exited about that stuff that you forget about these other foundation things that can really be huge pictures of the puzzle.

So many of these, you have to also ask, I mean, if we're going backwards there, we talked about, finding the root cause, but it's like, why were you susceptible to that root cost?

You were susceptible because your terrain was not optimal. So it was like autoantibody to the microbe or toxin all the way back to. Because then we can start to collectively look at, drawing the lines of how the patient ended up where they were.

Yes. Yes, exactly. Me too. Before we go there, is there anything else that you can think of that we did not cover today? That feels important to say. No, I think we covered it all.

We were really efficient today. That is awesome. I'm so excited to read your book. And then anything else to wrap up? You guys, just so you know, want to make sure that you guys know that, you can get ahold of any clinicians out there.

How do they get hold of things to set up accounts with you? Okay, so probably the best thing to do would be go to vibrant-america.com and go into just the main website.

There's gonna be a section where you can say you're a new provider. You can set up an account. Testing is through providers only. So patients out there who want testing, you need to go through Dr.

Mueller's site to be able to get the testing. Cause we want to make sure that you get that interpretation and that consult with it. And so yeah, but if you're a new provider, you can go over to the Vibrant website in there.

You can always find me on the clinical page. I do consults as well for providers and interpretation, and we have a really great clinical team that is there to help our providers.

Awesome. Perfect. Well, thank you so much for overlaying the or overviewing, I should say, the lay of the land with the test. And I think this has been super helpful for people to understand what to test and why and where to go and solve all these problems.

So thank. You so. Much for being here with us today. Absolutely. Thank you. Thank you for tuning in to Doctor Talks. We hope today's episode has enlightened and inspired you on your path to optimal health.

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