Introduction and Guest Background

Hi, and welcome to another episode of the Healing Lyme Summit. I'm your host, Doctor Maria Hinchey, and today we're going to talk about Lyme disease, autoimmunity, immune dysfunction and patterns.

And here to discuss this intricate topic with us is Doctor Kristen Poth. Doctor Tarn is a highly experienced and dedicated health care professional who balances a full time clinical practice with leadership as a clinic supervisor for over 20 clinicians with over 15 years of experience conducting training sessions both nationally and internationally.

Doctor Turn is recognized as a leader in functional medicine. Doctor turn Pas is a published author bringing digestible information to the public consumer with his five essential pillars for optimized wellness.

Doctor turn Pas brings a wealth of knowledge and expertise, offering valuable insights drawn from his extensive work in patient care, clinical supervision and professional education.

Welcome, doctor. Turn Pas. It's an honor to have you here. Say hello to our audience and let them know how you got started in functional medicine. Okay, well, thank you for having me.

And welcome, everybody. So I started in functional medicine in like 1995 or 96, and I started because I had a patient who had ALS come to see me, and he asked me a very simple question.

And we're going back almost 30 years. And he said, what can you tell me about CoQ10? And I said, I don't really know much about CoQ10. He put his finger in my chest and he said, learn or quit because I'm going to die.

So literally, as in Mark, Eric, he put his fingers learn or quit because I have ALS and I'm going to die. I need somebody it wants to know. So the next weekend, actually, Jeffrey Bland was speaking in New York City.

So I said, wow, that was a humbling experience. So I went up, kind of caught the bug and, started learning, then started teaching in 15 years ago. So that was how I got my foray into it.

And it was a good thing, because in 2003, my wife got Lyme disease and lost faculties from her neck down. So she basically was a quadriplegic for a short period of time.

So we found out it was Lyme disease. So he, you know, I credit really Mark. The person with ALS coming in and having, you know, that that impetus to get me, further on my journey and start to be more educated in this field.

Yeah. And, I mean, it sounds like it was, a huge blessing in disguise and prepared you to be able to help your wife because there's just so much misinformation regarding Lyme and co-infections.

And, gosh, if you had just gotten, you know, started down the standard road that most patients do, you might not have been able to help her the way that you are able to.

Yeah. It was a huge blessing.

How Functional Medicine Began

And that was a big learning curve, which, you know, you continue to learn, you carry it through with the rest of your patients, but becomes personal when it's your family member.

Yeah, definitely. So can you give us a breakdown of kind of how and why immune dysfunction occurs with stealth

infections like Lyme disease? Sure. So, break it down kind of.

For some people this will be remedial, but for some maybe they haven't heard it before. So think of your immune system having two halves. One side that is kind of your ability to kill and fight things off, and one side that's more tolerant or immuno tolerant.

And we call those one and two. And that's not, you know, for those that are very technical, he may say he didn't say that. Right. I know, but I'm kind of dumbing it down.

So think of it as a seesaw. And in the middle there's a fulcrum. And that's called a T regulatory cell. And so the side the T one side is the side. The works with things called natural killer cells.

And this is kind of the active part of killing stuff off. And, and it recruiting that what's called an innate immune support. And then this T1T helper one side of the immune system.

And so you want that side to be dominant during an infection is certainly an acute infection. When you get these stealth pathogens they tend to hide out.

And one of the ways they survive inside the body is they create AT2 dominant immune response which allows them to hide. And they're really good at this.

They're they're kind of like bugs. And then this other side, this two side is recruiting things like antibodies and things like that. So the bug will come out, the stealth pathogen will come out.

And if you think of a jet giving off flares to avoid a missile coming at it, these bugs, especially line, will come out and give off an Usb-a or and out or out or show protein, a kind of flare which will then capture the antibody so the antibody doesn't neutralize the bug.

So it's kind of like a misfire or the missile hitting the flare rather than the jet. And it also gives off, a a chemical mediated piece that says, don't recognize me, don't see me.

It gives off a two dominant situation. So they are able to remain stealth because that's in their best interest. So that the immune system, this other side, this one side doesn't really see it and attack it.

Immune Dysfunction in Lyme Disease

So it kind of creates this cloaking device that keeps it hidden. And so when that happens and these chronic infections cause our bodies to go into like ATH2 dominance, what are some of the things that we see in the body.

So what are some of the the symptoms that we see. Well a couple things you'll see is you see this kind of intermittent or chronic immune response. You'll see that.

But you'll also see, a global loss of tolerance. So what do I mean by that? You may see people that have many food allergies or can't tolerate foods, and then they don't tolerate chemicals.

So they have multiple chemical sensitivity, but they don't tolerate much. They these are people that even can come in and complain of like EMF sensitivity or things that are less, tangible or they just don't tolerate much anymore.

And the world becomes smaller and smaller. They can only eat a few foods. They can't handle chemicals they can't be. They don't tolerate even lack of sleep.

If they don't get enough sleep, their immune system doesn't recover. So these are the prob the patients that have multiple multiple problems. They're also, you know, more stress modes.

So they're not going to be able to digest. So they may have bloating symptoms or they may have gastrointestinal

symptoms, chronic headaches, brain fog.

They're kind of living under this cloak of just not feeling well. And it's harder to pinpoint. You have one symptom with one problem, right? Yeah. I often say I try to explain to my patients, like, look, Lyme infects every single cell in the body.

Therefore it's going to affect every cell and every organ and organ system. And, you know, you end up with what feels like almost this, like multi-system breakdown in failure.

And, you know, it leads people to feel like they're going crazy, you know, and a lot of doctors to be like, you're a hypochondriac. Like, all of these things can't be going on, you know, inside of you at once.

And, it's so true. And most of these patients, even though it's infectious origin, they may have a psychiatric component to it. And so they are many times lead down to psychic tree.

And there's no amount of psychiatric medication that's going to remediate an infection. Right. So it's helpful to identify why this is going on. And many times it's not just a mood disorder.

So even the patients receive from psychiatry. If you do a little bit more holistic, evaluation, they don't just have that. They have all kinds of other things going on. Right.

And I see that all the time. And I think one of the issues too, like with the neuropsychiatric symptoms, is that, you know, when you feel this way for a long time and no one's able to give you answers, I mean, that's going to create anxiety, that's going to create depression.

But then, you know, we're going to talk more about pants in a minute. But like, you know, with having inflammation in your brain like that leads to neuropsychiatric symptoms as well.

So it's like a double whammy. And you know, red flag for those people that are listening, you know, when you have someone that's not responding to a psychiatric medication in the way that one would think that you would, you know, that's a big red flag that something else is, is going on, that it's inflammatory or infectious or often both.

But doctor Turnpike, can you can you also talk about how this immune dysfunction can lead to autoimmunity? Yes. So when you have that infection and it burrows into your own tissue.

Right. So then these are my antibodies. These go after things. So they're like your attack dogs. And when a bug burrows into the tissue say a burrowing into my own thyroid here the immune system's going to go try to attack it and, and go after it.

So now you have a combination of bug and self tissue. That's one piece. The there's a really smaller white blood cell. So the neutrophil kind of comes in and eats that bug, if you will.

And then that bug has to be eaten by a bigger fish, the monocyte which is the macrophage. And then it's taken off into the lymphatic system. If the first one the neutrophil comes in and eats that bug but doesn't get eaten by the bigger fish within 6 to 8 hours, it ruptures.

Now when it ruptures, it ruptures self tissue, the the little fish and it ruptures the pathogen. So now you have what's called a debris field or like landmines, which are a combination of self tissue, your own tissue and a pathogenic tissue, pathogen tissue.

And there's confusion. Should I attack that or should I not attack that. And so you kind of send out this signal of something's going on with a bug, I should be attacking it, but it's mixed with self tissue.

So then you can develop kind of a dysregulated immune response where you're recognizing soft tissue as foreign. That's one mechanism. The other mechanism if the if the bug is burrows so much in the tissue, it's going to attack

self tissue even to get to the bug itself.

So there's two kind of mechanisms. And the third is what we call molecular mimicry where something looks enough like another bug. Right. So this bug looks like this bug.

More importantly in this situation this bug looks enough like self tissue that the immune system gets confused and attacks the bug and the self tissue, thinking it's the same thing, right?

How Chronic Infection Drives Autoimmunity

Thank you for that explanation. That was actually one of the most succinct like simplistic explanations for autoimmunity. And I think that'll be very helpful.

For our listeners, especially as we transition to talking about patterns. So can you explain what patterns or basal ganglia encephalitis is kind of like?

Set the stage before we move deeper into this conversation. Sure. So it started off being called pandas because it was just from strep. And then that kind of grew into it's more than just from strep.

It was named by Doctor Who psuedo at the National Institute of Health in charge of pediatric movement disorders. So and the first Pans Pandas conference was in Lake Como, Italy, which I was fortunate enough to speak with Sue Sweden at with 450 providers back when they didn't weren't sure it was a real disease.

And so, and I'll kind of fast forward to the end of that conversation once I go through this. So what happens in that situation? First with pandas, if we get to the root of it, pandas is you get strep and you confuse strep with your own brain.

So you're again, you're kind of attacking strep and your body thinks your brain is also strep. So it will attack your brain and cause an encephalitis in the brain, confusing it with the strep and many of us have heard of this condition in a different form called rheumatic fever.

So when you got strep and it looked like your heart, you detect your heart. It would be called rheumatic fever. There's another condition called Sydenham Korea, which you kind of get strep and you kind of get these weird dance like movements and hand screw, also called Saint Vitus dance.

It's just, another term for that, but it's, that's a little bit more transient. The, the synonyms. Crazy. So you kind of get this strep infection and it leads to an attack of brain or heart or kidneys or other tissues.

And that's that poly reactivity piece. And then we went on after the big lecture, four day lecture, and we were sitting around the room with all these brilliant people, and they said, what else do we think can cause this other than strep?

And, well, we all agreed that tick borne disease was highly probable of doing it. We agreed that some foods, if you react to foods, it can also trigger it.

But what you're getting is a a vector or an agent or something exogenous coming into your body, which triggers you to mistake that trigger for your own self tissue specifically attacking, you know, one of many different aspects of brain which will lead to that encephalitis.

And it's accompanied by it used to be a very rapid onset of a, of a movement or a tick disorder. But it leads to a psychiatric condition, that can be triggered by many infections or environmental agents.

And early on, the two, biggest statements by parents were literally an alien must have invaded my child because this is not my child. And the other one was does the hospital perform exorcisms?

Because my child must be, you know, have a demon inside. And so it's a really rapid change. It's very dramatic. Some of them are more mild, but the ones that really stand out of the ones, they're very, very, very intense psychiatric conditions where it's just not your child anymore.

And the shame of this is these instances and these conditions do very poorly with psychiatric medications. This not the indicated because the MEK, an ism of action, isn't just an imbalance in neurotransmitters.

This is really an infectious agent. Right? And a lot of inflammation involved with and whether it is as well. And none of these medications are solving the immune dysfunction, the autoimmunity or the inflammation.

That's really like at the heart of all of this. Yeah. We just actually it was yesterday, in fact, one of our other docs, Doctor Shannon Smith, he had a patient who looked like cerebral palsy, 15 year old.

And, we got the lab results back yesterday. It was Bartonella, but it was severe psychiatric issues with severe movement disorders been all the way up and down.

Of course, they thought it was psych. They were looking for things. And it was. It was Bart. Wow. How long had he been sick for? So Shannon called me last night on his way home.

He'd been sick for at least six years and misdiagnosed for six years and just continued to degenerate. Couldn't really walk down the hallway. It's terrible.

I don't even walk down the hallway. Okay. So how what is the intersection, then, between stealth and factions and basal ganglia encephalitis? Is it is it all so like obviously it's autoimmune and it's inflammatory but there's other things right.

Like so in addition to having like the molecular mimicry, maybe with these bugs there is also a role like if, cerebral folate deficiency for example, is is playing a role.

Right. Like there's other there's other pathology going on as well as other molecular mimicry with foods that the child might be eating as well. Can you, can you kind of like walk us through those two?

Well, the molecular mimicry with food is similar.

PANS, PANDAS, and Basal Ganglia Encephalitis

Like the food may look enough like. So even if it was triggered by an infectious agent. You can. The food can look like the infectious agent, which can also mimic your self tissue.

So these are kiddos who and a patient in Italy who the psychiatric episode happened after lunch. And in Italy, once you're admitted for psych reasons, you have to stay in for 30 days.

We knew within two days it wasn't a psychiatric condition. It was really a food triggered condition from something that may have been happen before. So you'll predispose yourself to this.

And there are several predispositions. One of them is a folate deficiency. You know, folic acid deficiency. There is, folate receptor antibody, which is sometimes you have an antibody to the type of folic acid you're taking in, which can trigger this response to, gets a lot of press, but it's very rare.

It is very rare. We screen a couple thousand kids and found one, so but it it is out so you can there are many other deficiencies. Then there's, there are deficiencies which predispose you to this type of reaction.

Very simply. One of those is low vitamin D can predispose you to this type of reaction. And the reaction is molecular mimicry in the presence. Usually I would almost say always, but let's just say usually in the presence of inflammation.

And when that inflammation, the inflammatory piece can cross the blood brain barrier and just drive inflammation in the brain and inflammation in the brain, the brain is, you know, combination of immune tissue and neural tissue.

And the neural tissue is kind of like an electrical circuitry. And when you add a bunch of heat or inflammation to it, it's going to fire differently and wired differently.

So there are many predisposition factors to having this encephalitis. And then the other piece is specifically in the basal ganglia. It's one of the most susceptible areas in the body to oxidative stress.

So those little powerhouses of the cell, those little generators, those mitochondria, they're extremely susceptible to oxidative stress, probably more than anywhere else in the body.

And so you any kind of oxidative stress and this is where it can be, an inflammatory response is going to cause oxidative stress. And now you have to tie in the whole world.

We live in all the toxins we take in and pesticides and chemicals and the water we drink and the air we breathe and the food we eat, if it has toxicity to it, whether it be heavy metals or plastics or chemicals, they're all oxidative stressors.

And so you're going to tend to affect the most sensitive areas of the body, which tend to be the basal ganglia like loop. Okay. And then if you have, you know, increased intestinal permeability and you're not able to detox and you have all of those sort of, additional things going on, it impacts the body and makes it even harder for you to deal with the environment.

Question. So I think you were involved in a study, right, that looked at molecular mimicry, in various, children. Right. With pans and pandas. Am I correct about that?

And like, it showed certain foods were actually, like the biggest triggers. Right. So there's the panel called the Cunningham panel, which checks for five different autoantibodies to the brain.

We kind of overlaid four of those and some other neural antibodies or self antibodies with food, and saw which ones looked similar enough or which ones had that molecular mimicry.

And a lot of the common foods do. One of the ones that stood out more than any was mint. So mint. I had a pans pandas girl who had seen some big names remain nameless.

But very big in the pans Pandas world. So she came to me and she calmed herself down with a glass of our cup of mint tea every day, and she reacted to mint, which triggered her brain reactions.

One of the things we did that was very easy was we cut mint out of her diet. A reaction, calmed down. So yeah, we published that. I probably a decade ago with Doctor Vision showing that foods tend to look the same as neural tissue.

And if you have a reaction to one and the other every time you eat the food, you're telling your body to attack your brain. So can you share with our audience?

Like what? Maybe, let's say the top three or top five foods that you found are regularly the culprits. In addition to mint? Well, mint was the one that was stood out the most because I didn't suspect it was a big one.

Some of the common ones we see, like gluten, egg, dairy were big. And then there were some that stood out for like group H strep or dopamine one receptor.

So, and I can make that available to you, that maybe you can put out all the listeners so they can see the little bar graph, so they can see where everybody has what's going on.

Yeah, that would be great. Like we can put it under like your, your bonus section so they can actually maybe download a copy of of, of your study and of the foods that have the highest rates of molecular mimicry.

Sure. Okay. So what's your approach to treating all of this with your patients? That I'm sure we could talk about this for hours, but you know it more.

Summary version. How how do you approach a, patient that has, you know, let's say pans or pandas, but really like the underlying root cause is, like a tick borne disease or like.

So it's it's really important for us, and I don't project out to anybody else, but in our office, it's important for us. First of all, is there still a pathogenic burden?

Do we still have an infection that was missed? Right. So if if there's 41% of the cases of post-treatment Lyme disease or ongoing symptoms from Lyme disease, 41% of those cases actually still have infection going on.

Yeah. So I think that's a just a huge opportunity for misdiagnosis. So oh you were treated your better. So therefore it can't be Lyme. The converse is true 59% of the patients don't have ongoing disease.

So 59% have similar symptoms without an ongoing infection. So the first thing we want to do. So let's just say it's 5050 flip a coin. Do they still have an infection or they don't have an infection.

Well if you're not reducing the pathogenic burden down to near zero, which I don't know that will ever get to zero, but near zero, then that's the first order of business, is are we able to reduce that pathogenic burden down to an acceptable rate?

So do they still have an ongoing infection going on? So I think that's important. And then are they stuck in this dysregulated state of this high to a low one or inability to do that.

And then what would be cofactors to that.

Food Triggers, Molecular Mimicry, and Testing

We talked about the toxicity. Certainly leaky gut. You know, if we don't fix or start to repair that intestinal permeability and leaky gut, we're allowing different things to come into our body, which is going to activate our immune system.

So gut has to be of paramount. And then inflammation, including neural inflammation. So if we're not addressing the neural inflammation that's a problem.

So if if they're reacting to everything they have lost their, tolerance to the world. If they're not reacting to certain foods. So again, I'm a simpleton.

If you're reacting to everything, we have to build up tolerance. If you're reacting to a few things we have to remove, remove the food. The few things.

But it's really challenging to say you reacted to 108 foods, so you're not going to eat these 108 foods and you're a six year old, or a ten year old, or a 15 year old. That's not reality.

So you take out the big nasties that are going to continuously trigger, and then you build up tolerance so that you can tolerate most of the other foods.

So I think it's important to build tolerance and take out the things that are still irritating. Make sure you don't have an ongoing effect infection and also at the same time support the body with the inflammatory cascades, reduce the inflammatory pieces, and and help support that overall inflammation.

With that in mind, then we want to shift that pendulum back over from the T two dominance back towards one dominance or ideally neutral. So you still have that neutral approach.

So there's a lot of lifestyle change that you are doing with your patients to accomplish most of those. Right. As far as education about environment and where, you know, we're all getting exposed to toxins and a lot of people not realizing it.

And as far as nutrition goes, it's way, way beyond teaching someone how to just eat a healthy diet, right? We have to look at what foods are affecting that individual sitting in front of us.

As well as as taking the molecular mimicry and all of these other things, you know, into account as well. Yeah. So if certain foods are reacting to your body, like the infection, like the tick borne disease, we want to get rid of those because every time you eat that food, you're going to have a tick borne pathogenic response so that is one piece.

What foods do that. The other one is what foods are irritating or leading to your leaky gut or facilitating your leaky gut. And third, then what foods are most toxic?

So if you're eating foods on what we call the dirty dozen rather than the clean 15, if you're eating these foods that are highly toxic pesticide, are they wrapped in plastic?

So you're getting a lot of all these chemicals and endocrine disrupting compounds in your body. So it's much more nuanced than just eat a healthy diet or just this food reacts to you.

And to your point, the patients. There's a couple of things we say in the office. What will make the case fail? The case will fail if the patient doesn't have that part of their protocol or treatment plan in place, because they're they're not going to get, that relief that they want and not just from a pill.

They have to get this from a lifestyle. And there have to be my words. They have to be directionally correct, even if incomplete. So as long as we're moving in the right direction, some of the hope I give my patients is, listen, it's an old phrase I think I stole from Jeffrey Bland.

Treatment Strategy and Root Cause Approach

The solution to pollution is dilution. So you can't just live in a bubble and say, I'm not going to get any of this stuff, but as long as you're moving in the right direction, as long as you're putting less toxins in than you're getting rid of on a daily basis, if you're facilitating that detox pathway and you're reducing that toxic burden, or you're reducing that pathogenic burden, or you're reducing that inflammatory burden, that's directionally correct.

Right? Yeah. I couldn't agree more. It's hard. It's you know, I tell everyone baby stops just we have to start and move forward. So, if you had one piece of advice to give our listeners, who may be struggling with Lyme autoimmunity pans, pandas or all of it, which, a lot of them may be, what would it be?

Well, I think I would actually start before that. I would hope listeners would have influence because maybe they're suffering or a family member suffering, but take heart if you are one that's not suffering yet and you haven't chose to clean up your lifestyle, you're shifting yourself.

You're predisposing yourself to that side. So if you're not eating clean, if you're not taking care of yourself, you're actually predisposing yourself to getting sick with a chronic infection.

Nothing was more apparent than Covid like, right? So people, oh, I'm kind of healthy, but not really. And Covid knocked them over the edge. So that's what I would tell everybody the time to act.

Or as I say, you want to get to it before it gets to you, whatever it is. Right. So you want to be proactive. The second piece is first of all, there's hope.

When everybody says there's no hope, there's nothing can be done. There absolutely is hope. And to put it in perspective, we don't say, we'll see how you're doing in three months.

I mean, we do, but what we try to say is we're going to prepare summers two summers, winters two winters and falls to falls and springs to spring. So give yourself the ability or the patience to say you're going to compare year over year results.

Be directionally correct. It doesn't have to be hard and fast. Day one you have to do everything perfect, but you do need to take baby steps, and you do need that to know that it takes time.

You do need to know that there is hope, and you do need to know that there's many clinicians like you and I out there that have supported hundreds of patients like this, thousands that there is hope.

So, and it's also misunderstood. So we get into several arguments with that little hospital down south of us called Johns Hopkins. So you know that it's okay to be told by a health care provider, oh, this is this, this is that, this is that I would say keep being your own advocate and know that there's hope and it's multifaceted, right?

So it's not just kill the bug, it's kill the bug. Repair the tissue, reduce the inflammation, restore normal balance, reduce the autoimmunity. And also know, that well, I have this named autoimmune disease.

There's still hope for that. And Oh I'm just getting sicker. Well, you can't help me because I have this. All of those are really if you break it down, a shift in the immune system, and there's lots of hope to shift it back.

Yeah, there is. And lots of opportunity and, you know, it's funny because I've treated so many patients and then, you know, it's like all of a sudden they get diagnosed with, you know, it's that diagnosis and it's like, okay, there there's an official name.

And I mean, it could be something just, you know, like, okay, well I have pots and it's like, well yeah of course. Yeah. You have pots. Yes. You have this cluster of symptoms, you know, and I mean, that has now afforded you that diagnosis.

But like it doesn't change that. It was your tick borne disease that's driving the inflammation in the immune function that's resulting in that symptom.

Or, you know, say that, you know, they get a diagnosis of asthma. And in my world, a lot of times it's a typical I miss because they're not meeting the diagnostic criteria because it isn't actually, as it's Lyme masquerading as, as causing a lot of the symptoms.

You know what I mean? That makes it look like it's amiss. And then you have the other subset of patients where it's like they might truly have these autoimmune disease as.

Hope, Prevention, and Final Advice

But I think you can slow down the progression and a lot of times even reverse it if it's being driven by these inflammatory infections that are the root cause of it.

So if we're looking at autoimmunity as this antibody attacking self mechanistically, what's driving that antibody other than self tissue. Yeah. So to your point you have if you can reduce the infectious driven autoimmune condition you can ramp this down.

And then you see things where different sub silos like rheumatology or neurology that label something Ms.. Or they're label it rheumatoid arthritis. But you can be sero negative rheumatoid arthritis.

And so that means yeah, the numbers aren't there like they're supposed to be. But you still have it anyway. Which means I don't really know what it is, but it kind of fits this description.

And so describing something doesn't help us usually give us a mechanistic approach as to why it's there. So again, if you have sclerotic tissue on your brain in multiple areas, we'd call it multiple sclerosis.

But how does that mechanism. So what do we do for that? Like what's the mechanism behind that. Or you have rheumatoid arthritis. But why what's the mechanism behind that.

And I think that's all of those, even if it's truly, you know, infection drives autoimmunity. Infections go on still have autoimmune. There's still ways to dampen that response by reducing the inflammatory cascade, not continuing to trigger in maybe blind spots, silos like diet and leaky gut and inflammatory processes.

I think there's a whole host of things that can be done even in the presence of a true autoimmune reaction. Autoimmune disease. Absolutely. Yeah. I agree 100%.

So, Doctor Turner, for our listeners, if anybody wanted to come and see you or come to one of your clinics or see one of your other clinicians, how could they reach you?

Well, our website is.pa, so it's t u r n h h c.com. And our phone number I believe is (717) 795-9566. Awesome. Thank you so much for being here. With me.

True pleasure. I love getting the word out and it's a pleasure spending time with you. I do as well. Thanks everyone at home. Thanks for listening. I hope that this truly was helpful.

On your journey healing from Lyme. And we'll see you next time. Take care.