Navigate The Difficulties Of Chronic Lyme

Myriah Hinchey, ND, FMAPS
with **Joseph Burrascano Jr., MD**

Myriah Hinchey, ND, FMAPS
Hi, and welcome to another episode of the Healing Lyme Summit. I'm your host, Dr. Myriah Hinchey. Most of you watching understand that chronic Lyme disease is such a complex, confusing, and often controversial topic. We are going to just dive right in. I'm so excited to have with us tonight Joseph Burrascano, JR, M.D. Dr. Burrascano is one of the founding members of ILADS. He brings over three decades of experience as well as research in the field of tick-borne disease. He is an active author and educator to both patients and other medical professionals, and he wrote the Diagnostic And Treatment Guideline For Treating Lyme Disease And Other Tick-Borne Illnesses. Welcome, Dr. Burrascano. Please share with our listeners how you came to specialize in tick-borne disease.

Joseph Burrascano Jr., MD
Thank you, Dr. Hinchey. It's very nice to see you again. What a long story! I was raised on Eastern Long Island, which is a little bit South of Lyme, Connecticut, next to Plum Island. We found out that we had the highest rate of tick-borne disease in the world out there. 80% to 100% of the ticks in our area were found to have Lyme in them. That's a very high percentage. When I grew up, I didn't know any of this, and no one did before the days of Lyme Connecticut. When I came back there for my practice, I did not plan to be a specialist of any kind. I was an internist in primary care. I saw all these patients with strange, complex illnesses that no one had a definition of. Over time, I was in the hotbed. I worked with Alan MacDonald and Bernie Berger and some of the people at Stony Brook and Yale, and we figured out what was going on. From the very early days, we learned how to test for it. We learned how to tabulate the clinical syndrome. I was the first to try and tabulate treatment guidelines.

Myriah Hinchey, ND, FMAPS
That was back in roughly 99.

Joseph Burrascano Jr., MD
No, earlier, like 80, 85.

Myriah Hinchey, ND, FMAPS
You've been doing this for your whole career pretty much.

Joseph Burrascano Jr., MD
I fell into it. Willy Burgdorfer was in my office on more than one occasion. I met him many times. So we shared this curiosity about this strange new illness, and that's how the whole thing evolved.

Myriah Hinchey, ND, FMAPS
I'm glad that you did because your treatment guidelines were probably one of the first things that I ever read when I became involved in treating chronic tick-borne disease. Thank you for that contribution.

Joseph Burrascano Jr., MD
You're welcome.

Myriah Hinchey, ND, FMAPS
So let's jump in. From a pathophysiological perspective, when does chronic Lyme disease become chronic Lyme disease? Like, where is that division between an acute infection and it becoming chronic?

Joseph Burrascano Jr., MD
What's been found is that the Lyme infection and the Borrelia infection will damage the immune system. It'll activate, and you'll see a fullness of inflammation, soreness, and flu-like symptoms. But at the same time, it weakens it and doesn't allow the immune system to clear the infection or other concurrent infections. this change occurs somewhere between six months and one year of infection, even if it's treated if the infection is not controlled, non-controlled infection for six to 12 months. When I did my first studies, I noticed that about 12 months into it, people somehow changed their character. The illness became more difficult to control. The symptoms were more severe. It's also in the co-infections, which were in the background, that they started to become more prominent. In my experience, it was six to 12 months. Others have seen it in six months, and I guess that has to do with the patient themselves—a person who's more ill to begin with. It starts a little bit sooner, but that's the range. Six months to 12 months.

Myriah Hinchey, ND, FMAPS
It's not necessarily the amount of time that you've been infected. It's the actual disease state of the body that would define chronic Lyme disease. like when someone goes from having HIV to having AIDS, would you say?

Joseph Burrascano Jr., MD
But it is a time sequence. I rarely see or have seen the syndrome, if you want to call it, of chronic Lyme disease. Someone has only been infected for a few months. It's much more than that. Again, my studies based on clinical findings took one year, but I guess it could be earlier in some patients.

Myriah Hinchey, ND, FMAPS
Can you tell us what dissemination means?

Joseph Burrascano Jr., MD
That simply means that the infection, the bacterium that causes Lyme disease, Borrelia burgdorferi, has left the skin and started to get into the bloodstream and travel around. Now, it's very important to understand that that's a process that occurs as soon as the tick gets to your bloodstream. The mouthparts of the tick get into the bloodstream when the bacteria start to enter. It's been shown, for example, in animal models as well as in some clinical series, that you can get an infection of the central nervous system within hours to days after the bite. It disseminates or spreads through the body very rapidly.

Myriah Hinchey, ND, FMAPS
So it's important to point this out because a lot of times I've heard people use the word dissemination in a way that is not correct. If dissemination is just when it is spreading to all of the cells in the body, you wouldn't consider it to be chronic in that state because, as you said, it could happen within a few hours, whereas a lot of people talk about disseminated Lyme disease and use that term interchangeably with chronic Lyme disease.

Joseph Burrascano Jr., MD
There's a subtlety, too. It's been found that certain strains of the Borrelia germ do not disseminate. They stay in the skin, and that's it. It was specifically the term dissemination that was coined for that strain of Borrelia that does not stay in the skin but does disseminate.

Myriah Hinchey, ND, FMAPS
Interesting. I want to talk a little bit about the acute infection. I want to get your stance on this because we have acute Lyme disease to be able to prevent it from going into chronic Lyme disease. When someone has acute Lyme, what is the minimum, like the absolute minimum number of days that someone should be treated to have the best chance of eradicating that infection? What is the desired antibiotic or antibiotics? We're talking, you saw the tick, you got the tick off, like in that type of situation.

Joseph Burrascano Jr., MD
How many hours do you have? You see, I'm one of the people who, from the very beginnings of this whole syndrome epidemic, whatever made the point that, yes, it disseminates very early, and even in the earliest stages of Lyme disease, you have to give a full dose of treatment with an

antibiotic that's going to be strong enough and a high enough dose to penetrate all the tissues, including the brain. Because if you don't, what's going to happen? If you use a weak treatment, you kill the weaker germs, leave the stronger ones behind to kill the more superficial ones and leave the deeper ones deep to do their damage. In terms of how soon after the bite, the sooner the better. I'm sure if a day, two, or three go by, or even maybe a week, although that's pushing it before you get treatment, that's probably fine. But regardless of when you start, you have to use a full dose. I hear people say, to use a smaller dose because it's in the beginning. Again, I've done a lot of clinical research. I've seen 16,000 Lyme patients in my career. I might be even more. again. Again and again, the sickest patients were the ones who got substandard treatment in the beginning. They had the tougher germs, the deeper ones. That's what caused the trouble over and over again. I've seen it. Now, that's a whole other topic. How do you treat early Lyme disease? You have to go back to the science. The Lyme germ is a very slowly growing germ, but it doesn't grow steadily. It grows and cycles for some time then goes dormant, and then grows again and goes dormant. This is a cycle in line that's about four weeks long. If you have an established infection, I contend that you need to treat for one or two brackets, one whole generation cycle. In other words, if you start to treat it and stop while it's in the dormant phase, it's going to wake up and make you infected again. I contend that you need to treat to bracket that whole generation cycle. For early Lyme disease, even my minimum recommendation is six weeks. Now, in terms of preventing Lyme, let's say someone has an infected tick bite. It's a descent; it's an engorged tick in your son to get a reaction at the bite site. You want to prevent life from happening. The dose and the duration are part of a risk-versus-benefit equation. For example, if you use a medication for three weeks, you're going to have a pretty high success rate, but not 100%. If you go to six weeks, it's still not going to be 100%. It's going to be much greater than what it would be at three weeks. But on the other hand, you don't know if you got the infection just because it's an infected or engorged tick. What's the risk? What's the benefit? Again, for just a bite, that's high risk. I would say three weeks is the minimum. Six weeks is probably optimum.

Myriah Hinchey, ND, FMAPS
You talk in your guidelines about how Borrelia lives in three different forms in the body. So, therefore, you need at least three different classes of antibiotics. Like, at what point does that become relevant? Just doxycycline alone isn't going to be good enough. Like, how far after the bite would you say?

Joseph Burrascano Jr., MD
What borrelia can do with this very unique organism is that they can change their physiology, their makeup, and their metabolism to try and evade their defenses and even antibiotics. That occurs by the time the immune system starts to develop and starts to activate against the germ. The germ senses it and starts to make changes. We know that the first antibiotic to appear is not completely effective in eradicating infections. Just gets the ball rolling. It's the IgG that starts to attack, and that doesn't form for several weeks. It starts earlier than that, but it doesn't get to a good level until several weeks, maybe six weeks, or four to six weeks into it. I can't prove this with

any study, but probably four to six weeks after the infection is when you start to think about it from a clinical point of view. An infection with Lyme begins with nonspecific body aches and pains like you've got a virus, but over time it starts to develop into a multi-system illness that migrates from different parts of the body to other parts of the body. It goes through these four-week cycles that correspond to germ regeneration. If the person has gotten to the point where it's become disseminated, multi-system migrating, and starting to cycle, then for sure the germ is stabbed, it's hiding, and it's going into biofilms that can protect it. That's when you have to start thinking about treating the different forms. Now, when you say treating different forms, one of the things that people worry about the most are the cystic forms of Borrelia, because they'll form a hard-shelled cyst. You can see pictures of this under the microscope that resist common antibiotics. The only class of medical antibiotics that have been shown to break open the cyst are the drugs called Azoles: Metronidazole, which is Flagyl, and Tinidazole, which is Tinadamax. Traditionally what people have done is treat Lyme with one, maybe two antibiotics, like a penicillin drug added to maybe clarithromycin, which is Biaxin. The patient improves to a certain level and then stops improving. Then you think, we're hitting a plateau, we have to start adding this Flagyl drug. One of my old friends, the late great Warren Levine, who's a deep thinker, called me up and said, people do that, and they get these cysts formed, and then you start chasing a tail trying to get rid of the cyst. He said, What if you started the people on the Flagyl with the other antibiotics? There is no chance for you to go and hide because you already have that covered. What I did was go back to my charts, and there are a few people, for whatever reason, who started that regimen not for that reason but for other reasons. They did better. My recommendation now is that if you have the disseminated multisystem migratory cyclic form of Lyme disease, which means it's getting established and going to start treatment, you would add a cyst buster right at the very beginning. Nowadays, some botanicals are thought to be cyst busters as well. Whatever your approach is to treatment, it's wise to do that at the very beginning.

Myriah Hinchey, ND, FMAPS
Just make sure you have the bases covered. As you said, instead of chasing it, have something that's covering all three at once so it can run, hide, and flip back and forth as much as it wants. But you have it covered.

Joseph Burrascano Jr., MD
That's right.

Myriah Hinchey, ND, FMAPS
Here's the million-dollar question. Once you have Lyme, you always have Lyme. What's your response to that?

Joseph Burrascano Jr., MD
I have to say no. Again, I've treated many patients, and I've gotten many of them well, and they've stayed well. I've even seen that I still live in my hometown, in my local area. I see people who I've

treated ten, 15 years ago or more, and they say, that after the treatment, I go, well, and I never get sick again. What I found again through the study is that if you can get someone to the point of being over the symptoms of the tick-borne disease and they don't relapse and they haven't relapsed or gotten bitten within three years, then they're never going to have it come back. Now, the problem is that a lot of people don't get early treatment, and they don't get aggressive treatment. They don't get appropriate treatment, and they fall through the cracks. Those are the conditions that start to happen when you're so badly infected: you get a buildup of toxins, and you get an overgrowth of other germs. Germs that are hiding can reactivate. It's a much bigger problem at that point. But if you can get all of this put together and put to bed all the time, it can take months, even years, of treatment, but you will get the patient well, and they will stay well until the next tick bite, unfortunately.

Myriah Hinchey, ND, FMAPS
Yes. Unfortunately.

Joseph Burrascano Jr., MD
Remember, don't feed the ticks.

Myriah Hinchey, ND, FMAPS
I can't tell you how many patients we've treated, weaned them off their protocols, and then, like two weeks, two months, or a year later, they're back with another tick bite. Devastating. At least they know how to handle them at this point.

Joseph Burrascano Jr., MD
They get early treatment. They see the right person, and so forth.

Myriah Hinchey, ND, FMAPS
How do these co-infections complicate the prognosis and the whole picture?

Joseph Burrascano Jr., MD
Ticks are like nature's dirty needles. They're like a sewer. They have dozens, if not more, of potentially harmful organisms in them. They've got bacteria; they've got protozoa; they have other parasites, viruses, and so forth. So when you get a bite, it's possible. In some cases, you will probably get more than one infection. Now, what I always say and a lot of people don't agree with me on this, but I say that when you have what's called the co-infection Lyme and others, it seems to boil down to always being alive. If you can get Lyme controlled; the other ones are difficult but controllable. Again, it's because Lyme is the one, Borrelia is the one that hurts the immune system. If you can get that controlled, that's hard to do, but if you can do that, then the other co-infections are not as difficult. But the problem is, for example, Babesia, which is a parasite. When that's present with Lyme, it makes Lyme more severe, and more treatment-resistant, and takes longer and more aggressive regimens to get rid of it. That's a nasty co-infection again, and approximately, at least in my neck of the woods, two-thirds of

people with Lyme have been shown by blood testing to have babesia with it. That's a cold fact, co-infection—that's a problem. Now, going back to the beginning, I don't want to get too winded about this, but if you treat Lyme disease early before it starts to get into the chronic phase and you treat the Lyme itself, the Borrelia, aggressively, the co-infections very often seem not to be an issue either because the immune system can contain them. If it's a healthy immune system and so forth, it's only when you get into the chronic phase that people start to have the immune system break down to the point where the co-infections become a real big issue because there are many exceptions, and some people start with babesia and then later get Lyme or the babesia prominent, and then the Borrelia comes out after that. But anyway, co-infections are always an issue, and babesia is the worst when it comes to making Lyme worse.

Myriah Hinchey, ND, FMAPS
Then, for our listeners who don't know, babesia is a parasite. like standard antibiotics that treat bacteria or kill bacteria aren't going to be effective against babesia.

Joseph Burrascano Jr., MD
That's why the problem with treating tick-borne diseases is that, as I mentioned, you can unfortunately get a variety of different germs at the same time. Medication, for one, does not necessarily work against the other. The more advanced practitioners don't use one medication. They use a combination of medications. Often, you add botanicals to it nowadays as well, because you want to blanket the different types of pathogens that can make you sick.

Myriah Hinchey, ND, FMAPS
I have a ton more questions for you, but you're the expert, and I want to hear from you. As I was preparing the questions, like, what are the top three things that you think people need to hear about Lyme and co-infections?

Joseph Burrascano Jr., MD
One thing is that you have to see the right practitioner because if it's properly treated, you can get well and get over it. It's not a hopeless case. That's very important. The second thing is that, as a patient, you need to become your advocate. Keep copies of all your records, lab reports, doctors, notes, X-rays, and whatever is being done. Keep your records. Learn about the illness. Teach your caregivers, often friends, family, and coworkers on what's going on to get the proper support and advocate for yourself. The final thing is that these illnesses are clinically managed. There's no blood test you can do, a scan, or anything else you can do regularly to see how well you're doing, if the treatment is working, and so forth. It's all based on how you're feeling and what's happening. The third and very important thing that I had all my patients do is keep a daily diary because you'll see over time that there are good days and bad days. With Lyme, you see a four-week cycle. If the treatment is working, the bad days are less bad and there are fewer of them, and the good days are better and there are more good days. You want to see that evolve. You want to see if a plateau happens. We have to start changing treatments or regimens, and so forth. the Daily Diaries, the other key piece to this.

Myriah Hinchey, ND, FMAPS
It's super helpful for practitioners to be able to tell, and if a patient comes in and they're having a bad day, everything's worse. If they're having a good day, everything's better. It's nice to have as much objective information to look at as possible.

Joseph Burrascano Jr., MD
Also, I tell the patients not to go crazy and have this every single day, every little thing, and change things because number one is going to make you crazy. Number two, you have to put a time limit on when you're not going to do it. Have a calendar, which is like one month at a time, and you put like a black that's a bad day. Blue is good, and yellow is in between. Whatever you want to do, you can hold it up and say that's the pattern. Look at this, a four-week cycle. This is like ten out of ten is now four out of ten, whatever way you want to do it. A number or a color scheme or whatever, and just do a monthly calendar. You don't have to write things down in detail, but you do want to mark on the calendar significant symptoms, changes, and medications that thing. Milestones.

Myriah Hinchey, ND, FMAPS
It's important to keep track, but don't dwell.

Joseph Burrascano Jr., MD
Good idea.

Myriah Hinchey, ND, FMAPS
Dr. Burrascano, share with our listeners how they can reach you if you want to be reached. As well as if you have any exciting news or events coming up that you would like to share.

Joseph Burrascano Jr., MD
I don't have an office practice anymore. I'm doing straight research for different companies right now. I'm not available to see patients, although I do consult with physicians on their patients regularly. That's one way. There's a conference coming up at the end of February into March that I'll be speaking at, giving two lectures. That's in Austin, Texas. That's TFIM.

Myriah Hinchey, ND, FMAPS
I will be there. I will be with you.

Joseph Burrascano Jr., MD
Excellent.

Myriah Hinchey, ND, FMAPS
Wonderful. Then, always, we have the ILADS annual conference.

Joseph Burrascano Jr., MD
That's true. Also, in my educational efforts, I've done several different webinars that are available online in different places.

Myriah Hinchey, ND, FMAPS
Wonderful. So for the listeners who subscribe or sit tight, we're going to dive deeper into the subject. For those of you who would like to become subscribers, you can click the button below and sign up.

So let's see. Oh, do you also recommend it? So you brought up the importance of keeping track of your symptoms, and you were talking about the life cycle and all of that. Do you think that it is important to treat or wait two months after the resolution of symptoms? Is that one of your suggested guidelines as well? That's something that I learned on the ILADS. I can't remember if that was one of your recommendations or not.

Joseph Burrascano Jr., MD
It goes back to this four-week cycle of Borrelia. If the treatment is working, as I mentioned, the bad days get fewer and the good days get better, and you have the calendar to look at. I write the third week of every month as my bedtime. If you're getting better and better and you get to the point where you expect to wait a week and you don't have it all, maybe that's controlled. On the other hand, maybe it isn't. What I always recommend is to go through one more cycle, just to be sure. That means at least one more month to six weeks of treatment; others are a little bit more conservative. They like to go two to three months from the end of their symptoms. But again, keeping the calendar is an important thing because it's the guide. That's why the way you manage the line patient is not by blood tests; it's by clinical picture.

Myriah Hinchey, ND, FMAPS
When you were practicing with patients, what did you tell patients to expect? Like, how did you help them navigate this chronic illness?

Joseph Burrascano Jr., MD
Expect medication; of course, expect frequent office visits. It's so important to see the patient put hands on the body, examine them, and have an interaction because that's important. Let's say it's not an alarm world, but in other words, in medicine, they'll see you for a condition, and then that's the end of it. They never order or make a follow-up visit. I always insist on follow-up visits. That's an important thing. I have to tell them that unfortunately, it's a difficult illness because there are many uninformed and misinformed clinicians out there that might lead you down the wrong path or, if misdiagnosed, mistreat you. That's a very big danger. Now, the unfortunate thing is that it's a very expensive illness. You do end up seeing a lot of different medical providers. You start to have to order tests from laboratories that don't always have insurance, and it becomes expensive. The other thing is that it does take time. The sickest of my sick patients who I got, well, I would tell them to expect three years of some treatment, maybe not continuous

antibiotics, but it'll be three years before you get back to yourself again. That generally holds because many people get better sooner than that. But for the sickest of the sick, expect three years.

Myriah Hinchey, ND, FMAPS
Good points. In addition to those things, what would you say are the primary challenges that a patient would face?

Joseph Burrascano Jr., MD
A lot of things. One thing is your outlook. It's very hard when you're chronically sick and when you look good, but others don't think you're sick, and you are. It takes a lot of work to stay optimistic. But I can tell you again and again that I could tell right away whether patients were going to get better or not by my first visit, by whether they said, I'm so sick. Nobody understands my life. I don't know if they remain sick for whatever reason, whether it's the germ affecting their psyche or the other way around. But those who came and said, I can't stand this; I'm going to fight it no matter what it takes to get over it. They always do.

Myriah Hinchey, ND, FMAPS
One of the things that has come out a lot in this summit is that your mindset matters.

Joseph Burrascano Jr., MD
Research has also shown you can't blame the patient for all this because research has shown that infections do change the way you think. That sometimes is a big challenge. But if you're a patient in that situation, just understand that this is not you; it's not your fault; it's part of the illness. You're going to fight this and get over it. That's again why you need good support from your practitioners, from your family, your caregivers, and so forth. That's why you educate yourself, but you educate them as well.

Myriah Hinchey, ND, FMAPS
I was going to make that point, too. If every Lyme patient could bring their spouse, their parent, or their children, if they're old enough, to come in just to understand, Because a lot of them have just been dragged through the system, they're hopeless. some of them almost rightfully so. They've been told it's in their heads. They've been told there's nothing wrong with them. A lot of people just give up hope. It's like they think that their family members don't believe them. I've had a lot of success just being able to explain in front of the patient and to the family member that they're not making this up and that, like, listen, if the brain is on fire, and we just did an interview earlier today with Dr. Nancy O'Hara on Pans and Pandas, and it's like, the basal ganglia encephalitis is causing OCD, panic, anxiety, rage, and all of those things. It's like it's very real. It's not just a phenomenon of, I've been sick, so I'm depressed or anxious. It's like, no, the brain cells are on fire in certain areas that cause those behaviors.

Joseph Burrascano Jr., MD
Think about it. If you're a patient in that situation where, in layman's terms, your nerves are on edge and you're frustrated and angry, you go to the wrong physician. They say, Well, I don't know what's wrong. If you do a blood test, set a standard lab or the hospital I work for, and the pick-up rate is less than 50%. They don't know what's wrong with you. They do a lot of different tests, and they say, But my knees hurt. They send you to a rheumatologist or an orthopedic center. After all their tests, they say, What's wrong with you? By then, you're getting tingles and the nerves and say, I'm going to go see a neurologist." You get a big test workup, maybe even a spinal tap, and there's nothing conclusive. Then you go on to someone else, and they say, It's got to be in your head. By then, the spouse or the family members are saying, here it goes again. They spend time, money, and effort waiting for scans to take three weeks to get done, and all this happens. They're angry, and I don't blame them. I would be angry, too. That's why when they come to a practitioner who is Lyme literate, they say, Wait a minute; we know what's going on with you; we can fix it. It's like, the light bulb is on. the curtain raised. But then it's up to the practitioner to carry it out and make sure that they do get better.

Myriah Hinchey, ND, FMAPS
What resources are out there for caregivers and family members to educate themselves, become more Lyme literate, and learn how to support a patient navigating chronic Lyme disease?

Joseph Burrascano Jr., MD
One of my favorite organizations in that regard is lyme.org. That's what they call themselves, and that's the website, lyme.org. It's very scientifically based, but it's also amenable to the nonprofessional, but it is also geared toward professionals. They've great articles. They have newsletters, and they have educational resources that are important and very helpful. They're a bunch of great people. I support them in that regard.

Myriah Hinchey, ND, FMAPS
Do you have any advice for patients on how to talk to whatever other medical providers they have in their lives who aren't Lyme-literate? Like how to broach the subject? Because I had a patient tell me last week, I'm not even kidding. She went and found a new primary care physician. She mentioned to them that she had chronic Lyme disease, and the doctor said, I don't treat Lyme disease. They didn't mean chronic Lyme disease. I'm sorry. Let me rephrase. I also said I don't believe in Lyme disease. This is in Connecticut. Not that Lyme isn't everywhere in the world.

Joseph Burrascano Jr., MD
I was seeing patients as Lyme specialists, let's say because most of my patients said that by the time I was into this, they had come from out of town. I always insisted on having a primary care doctor for day-to-day concerns and things like managing blood pressure or whatever else, and to be there if, there's a side effect of medication and they live 500 miles away. I always insisted,

number one, that they have an active primary care physician that they see on a very good basis. Number two, I would make up a summary of every visit and send it to their primary care physician so they would know what's going on and then I'd have the patients see that physician regularly, even if there's nothing special happening, just to keep them updated in the loop. Now that means a primary care physician is relieved of the duty of dealing with Lyme disease because now that's not their department. Just like they won't have to worry about someone getting neurosurgery because that's not the department of their primary care. It relieves the primary care doctor. The patient can say, Well, it's not a matter of belief. It's not a religious disease. It's scientific, but don't worry about it. If my day-to-day concerns you, we're going to keep you in the loop. But if they have a problem related to the tick-borne disease, then I'll call my specialist. You can always call that specialist whenever you like and get the records. Now, a physician who was a Lyme denialist will never read about Lyme disease in a meaningful way. If they're hostile toward you, then it's best to just change physicians. But, on the other hand, you don't necessarily have to fight. You do your thing with your Lyme practitioner and leave your primary care person to do primary care.

Myriah Hinchey, ND, FMAPS
That's good advice. Thank you. Is there anything else that you think our listeners should know before we wrap up tonight?

Joseph Burrascano Jr., MD
As I mentioned several times, education is important for yourself, for your caregivers, and so forth. So there are several websites you should know about. lyme.org, as I mentioned, is a great resource for everybody patients and practitioners alike. Also, there are Lyme organizations: ILADS, and International and Lyme and Associated Diseases Society. They have a great website with a lot of resources. Lyme Disease Association. Pat Smith's organization is also very scientific and a solid place to go. Interestingly, the Lyme disease lab called Diginex has on its web page a lot of resources that people are often not aware of. They have webinars. Many of my webinars are on there, too. They have educational articles, monographs, and so forth. It's more than just what the tests are. It's also an educational resource. Those are good places to go. Also, because that website is from the laboratory, it's specific to the tick-borne disease. It's like you get to spend hours looking on YouTube, finding nonspecific things, and trying to search for what you want. This is a direct path to getting your answers.

Myriah Hinchey, ND, FMAPS
Wonderful. Thank you so much. Thank you for being here with us tonight.

Joseph Burrascano Jr., MD
My pleasure.

Myriah Hinchey, ND, FMAPS
Thank you to all of our listeners at home. We will see you next time for another episode of Healing Lyme. Goodnight.

Joseph Burrascano Jr., MD
Goodnight.