Dr. Jill

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#37: Dr. Jill Interviews Dr. Richard Horowitz on Lyme Disease Treatment

Text:

Dr. Jill 00:11

All right. Welcome, everybody! I am live here with Dr. Richard Horowitz. As I told him before we started, I am honored to have him and have his time today. He's got so much on his plate, like all of us do nowadays, yet he is one of the doctors who I have some of the greatest respect for in this field, making a difference. And not only is he making a difference in his clinical practice with protocols, which are really revolutionary, but he's [also] publishing on this. And this is what helps us as physicians get the change in the world that we need to prove that some of the new protocols that we're putting into place are actually effective. So I have not only the greatest respect for him as a clinician but [also] as a scientist.

Dr. Jill 00:54

And one thing I love about you, Dr. Horowitz—and I'll read your formal bio in a minute—is your heart to serve. You've always struck me—I know you bring teaching into your practice. I want to talk to you a little bit about that and about the importance of mindfulness and meditation because so many of our patients are at the edge and their limbic system is completely out of sorts. And I think it's really important for you and me to bring that to our practice and to our patients because some of them reach the limit of what medication can do. And if we don't address that piece of the mind-body, it's not doing them service. So thank you for always bringing that to the clinicians that you teach and to your patients as well. You are just a great example of someone who really does things in a very holistic way. Yet there is such great science behind him. So thank you.

Dr. Richard Horowitz 01:42

Thank you, Jill.

Dr. Jill 01:42

And we'll talk about it at the end for any physicians who are listening. Dr. Horowitz

does a course. It'll be virtual next year; dates will be announced. I'll let him tell us about that. But he does a great training that I did last year—I highly recommend it—on the science and state-of-the-art treatment of Lyme disease and co-infections. So we'll be sure to talk about that. I'm going to introduce you real quick, and then we'll dive right in.

Dr. Jill 02:06
Dr. Richard Horowitz, if you don't know him, is a board-certified internist in private practice in Hyde Park, New York. He is the Medical Director at the Hudson Valley Healing Arts Center—that's where we did our course, and now, of course, it'll be virtual—[which is] an integrative center that combines both classical and complementary approaches in the treatment of Lyme disease and other tick-borne disorders. He has treated over 12,000 chronic Lyme disease patients in the last 26 years—and I'm sure that's just rising every month and every year—with patients from all over the U.S., Canada, and Europe [coming] to his clinic. He's a former assistant medical director at Vassar Brothers Hospital in—I can't pronounce it—New York.

Dr. Richard Horowitz 02:44
Poughkeepsie.

Dr. Jill 02:43
Thank you. Poughkeepsie. I know I was there, and I remember that. Thank you. And [he is] one of the founding members and past president of ILADS, which is another great physician organization that teaches us how to treat Lyme disease and is kind of on the cutting edge of that. He is a prolific author. If you haven't read his latest book, *How Can I Get Better*? it is an excellent resource if you're a patient. It really, really boils down some of the things about Lyme disease that you need to understand. If you're a practitioner, it's excellent too because he really references his protocols and what he's recommending well. I don't know of anyone, Dr. Horowitz, who's made such a difference in the field of chronic infection and tick-borne illness. So, number one, thank you. I honor you for being here and for your contribution.

Dr. Richard Horowitz 03:29
Thank you again, Jill.

Dr. Jill 03:30
You're welcome. You're welcome. So let's dive in. I always find that our stories are what bring us to what we do [with] passion. I want to know if you have any story around: How did you get to be where you're at now? And what brought you into this, as far as the passion or the drive to really treat these most complex patients?

Dr. Richard Horowitz 03:48
Yes. So the story is quite interesting because I did my medical training at the Free University of Brussels in Belgium. And it was interesting. I was on the waitlist at U.S. schools, and my stepfather was a surgeon who had studied in Europe. He told me it was great. The Free University of Brussels accepted me, and I had taken a lot of French courses. I took a training [course] in Lausanne for three months before starting. It was a seven-year medical program. I was pulled to Europe. It was just a wonderful experience.

Dr. Richard Horowitz 04:17
In my fourth year of medical school, I had done transcendental meditation for the first couple of years because, as you know with medical school, it's a bit stressful. So I was meditating a couple of hours a day, and it was really helpful. But around my fourth year, the Tibetan lamas lived, believe it or not, about three blocks from where I was living in Brussels. I didn't realize this; my friend Bill told me. And I went over there to start getting teachings, and that's where I met some of the teachers who instructed me on meditation and the type of practices that I'm doing now.

Dr. Richard Horowitz 04:48
The motivation that I have and the drive that you're talking about are really thanks to them because when I spoke to Lama Gendon Rinpoche, I asked him when I was leaving medical school: "What do you want me to know? What's the most important thing that I should know going out into the world?" He said: "Richard, the most important thing is compassion. Just put yourself in [other] people's shoes and do for them what you would want done for yourself." It's really quite simple. And it's always about service from that perspective. And as physicians, of course, that's what we do.

Dr. Richard Horowitz 05:21

But when I finished my Mount Sinai training in New York City, I had a choice of where to practice. And one of these lamas, Kalu Rinpoche, was teaching in Wappinger Falls, which is about an hour and a half from the city where I was doing my residency in internal medicine. And I went there and I asked: "What do you think about coming up? I could get meditation teachings. I'd be close to my parents in Queens." He did what's called a 'mo', a divination, and he said: "Oh, coming up here; very good." So it's like one decision... because my mother wanted to open me up an office in Bayside, Queens, right? And of course, what happened was that I was pulled to Hyde Park, New York, which is right above Poughkeepsie. At the time, in 1987, I was moving into the largest Lyme-endemic area in the United States, and I didn't know it.

Dr. Richard Horowitz 06:13
The training that I had in Brussels was great because, as an internist, it was a seven-year program, and I really was taught how to be a medical detective. I was always joking about an MD being a medical detective and doing differential diagnoses. So when these patients came in with erythema migrans rashes, 75% to 80% got better with antibiotics, but then, of course, [there were] the 20% to 25% that didn't. That's when I went on the journey to start looking for answers. I went to conferences like the LDF. I met Joe Burrascano, Ken Liegner, and Sam Donta—of course, all the great-grandfathers of Lyme who preceded me. It just kind of started from there.

Dr. Jill 06:52
Wow! And we all stand on the shoulders of someone else. I feel the same, and again, I owe a lot to you. But it's so interesting because we keep perpetuating. Even today, part of my goal is to teach physicians little pearls or things. And as it sounds like for you, I always say that with mold and Lyme, I didn't choose them. I probably would have never chosen to treat the most complex chronic illness in the U.S., in the nation, and in the world, but it chose me. And it sounds like, in that way—not really accidentally, but in a way—you were drawn to this area. You had to treat the people who were sick there. So thank you for that, and also thank you for the compassion that you bring.

Dr. Jill 07:30

One thing I want to talk about is that, first of all, there are still people out there who think that this doesn't exist. And you and I in the trenches see this every day. It's very clear. It's clinically diagnosed with excellent tests. But one question would be: Why do you think the prevalence is increasing? Talk a little bit about why we're seeing more and more cases of this from your perspective.

Dr. Richard Horowitz 07:52
The number of cases is, of course, an estimate. Years ago, when the CDC used to say there'd be 30,000 or 35,000 cases, multiplied by 10, [that's] 350,000. There was an article, by the way, that was just published this morning by Basant Puri and Michael Cook on the prevalence in the US and Europe. The numbers they came up with were closer to about 450,000 cases a year in the US. That fits with some of the studies that I've seen from the CDC. It's been anywhere from 45,000 to—one year a couple of years ago—almost 600,000 cases. So it varies, but that's Lyme. That's not talking about Ehrlichia, Anaplasma, Babesia, Bartonella, Rocky Mountain spotted fever, Q fever, or tularemia. We're not counting those.

Dr. Richard Horowitz 08:41
So then, of course, I count, for example, those with chronic fatigue or fibromyalgia, which is a clinical diagnosis that has exactly the same symptoms as Lyme. And that's 5% of the US population. So that's about 17 million Americans that have chronic fatiguing, musculoskeletal, and cognitive deficits, which include, by the way, POTS disorder. As you know, it's part of that protocol. And there's no test. So, of course, the question I have for people is: If we have 17 million with chronic fatigue or fibromyalgia and then over 20 million with an autoimmune disorder in the United States, 46.5 million with preclinical dementia, and Lyme has been linked... In fact, it's so interesting that *Nature*, just a couple of days ago, re-brought this up in an article I posted on my Facebook page: Chlamydia pneumoniae, Borrelia burgdorferi, and Porphyromonas gingivalis from the gums are the three bacteria that are now showing up in Alzheimer's with the herpes viruses. And JAMA published years ago on pesticides.

Dr. Richard Horowitz 09:41
So how many people really have this? My best guess is that it's probably a lot more than what we think, because: How many people are getting tick bites? They don't see the ticks, right? The testing is unreliable. It's about a 50-50 shot with the ELISA

and western blot. So regarding that, for people who are not sure, who are listening and say: "Hey, I have chronic fatigue, and I have good and bad days, and the symptoms come and go. And I have migratory joint pain," "migratory muscle pain," or "migratory nerve pain"—tingling, numbness, burning, stabbing—that migratory pain is really the hallmark of Lyme.

Dr. Richard Horowitz 10:18
There are only seven diseases in medicine that cause it, and most people who walk into your office or mine are not going to have acute rheumatic fever, hepatitis, ulcerative colitis, gonococcal arthritis, or Reiters—all these other differentials. So, when you've got those symptoms of migratory pain, fatigue, and headaches, "I can't fall asleep, I keep waking up in the middle of the night," memory/concentration problems, walking into rooms, forgetting—that's really specific, right? It's the hallmark of the symptoms.

Dr. Richard Horowitz 10:46
And I did publish a study years ago. You know about this. It's published in the *International Journal of General Medicine*. We did this with Dr. Phyllis Freeman from New Paltz and Mary Alice Setera. We looked at 1,600 people, both healthy and with Lyme, and we developed a screening questionnaire based on Dr. Burrascano's questionnaire from years ago. For those who aren't sure if they have it, you should go online and take the questionnaire. A score greater than 63 is two standard deviations above the mean. It gives you a very high likelihood of having it.

Dr. Richard Horowitz 11:16
And then you just send off an immunoblot to IGeneX, like an IgM-IgG, because the immunoblot, which is their newest test in the last few years, doesn't check one strain, like Quest or LabCorp. It doesn't check two strains like their prior western blot, which was the B31 and the 297. Now it's checking eight strains, including afzelii, garinii, and some of the European strains. It's just not checking me for miyamotoi. You have to do a separate relapsing fever panel. But if you do that and you see a 23 (Osp C), 31 (Osp A), 34 (Osp B), 39, 83, or 93—if you've got migratory pain and even one of those bands on an immunoblot—you're honing in on the diagnosis. So it's complicated in some ways, and in other ways, you could kind of simplify it in my world and in yours.

Dr. Jill 12:06
Yes. So for you as a patient, if you're listening, you're like, "What did we just talk about?" Really simply, if you go to LabCorp or Quest and you get a western blot, which is the classic test that's easily available—and even then, they usually allow for ELISA screening, which has very low sensitivity and specificity—then they'll only go to the western blot if that's positive. But if you get a western blot—what would you say?—that's one strain. I would say it's one strain, I believe, of a Connecticut/Eastern type of Lyme, Borrelia, and it's going to yield a very low sensitivity. What you're talking about is IgeneX immunoblot, which has a much higher yield. So if you're a patient and you said, "Oh, well, I was tested for Lyme and I don't have it," if you were tested by one of those conventional labs, the likelihood... Is there a percentage you would guess on the sensitivity of that one strain versus the immunoblot?

Dr. Richard Horowitz 12:55
It would be a rough guess. I can usually pick up at least one of the Borrelia-specific bands on an immunoblot. And [regarding] the IgM, by the way, people should know: IgM western blots or immunoblots, most people think, are just with early Lyme. We published a study, as did Johns Hopkins University with John Alcott, [showing] that a CDC-positive IgM immunoblot or western blot is seen in chronic Lyme. So if you get one of those and you take it to your doctor and they say, "Oh, it's a false positive because you can't possibly have an IgM in chronic disease," the answer is: "No; you can." I'm not the only one who's published it. So I would probably suspect that Quest or LabCorp testing picks up 20% or 25% maximum. I get very high yields from IgeneX, especially when you're looking at it as a clinical history.

Dr. Jill 13:42
Yes, I agree. So we're looking at multiple strains, which means you're covering more of the US. And then the other thing you mentioned, [which] I definitely want to talk about today—we could talk about it now—tick-borne relapsing fever. I am seeing, now that I'm testing for it, a lot of cases. And I actually feel like my most difficult clinical cases are showing up with tick-borne relapsing fever. Tell us a little bit about: What is this? Why is it harder to detect? Why is there usually no rash? And are you finding more cases of tick-borne relapsing fever?

Dr. Richard Horowitz 14:09
We definitely are. Tick-borne relapsing fever is like a cousin of Borrelia burgdorferi,

the organism that causes Lyme. There are two types. There's soft tick relapsing fever. That's Borrelia hermsii, and some of the ones in the Midwest. You'd have outbreaks in Arizona. That's been happening for years. But then the newer one is Borrelia miyamotoi, and that's hard tick relapsing fever. So they call it Borrelia miyamotoi disease. Now the problem with that is that you could have a Lyme-like illness and have fatigue, headaches, joint and muscle pain, and cognitive issues, [and then] test negative on all the standard Lyme testing. But the reason is that you don't have Lyme disease. You have a relapsing fever strain like miyamotoi.

Dr. Richard Horowitz 14:50
When people are listening and they're saying, "What tests am I supposed to do?" it's a very important point that you want to do a relapsing fever panel. And again, I want to be clear: I have no financial incentives with IgeneX. They don't pay me to advertise for them. They just happen to be the best lab, in my opinion, in the United States doing this. But if you do a relapsing fever western blot through them... And they also have a relapsing fever PCR panel; you'll generally find it. Is that what you're using, Jill?

Dr. Jill 15:17
Yes, exactly. And they're really the only ones that are doing hermsii, miyamotoi, and all the different strains. There are maybe up to eight strains, and then they have a generic that covers all the different tick-borne relapsing fever strains.

Dr. Richard Horowitz 15:31
Yes. I think they're actually up to 16 to 20 relapsing fever [strains] altogether. Of course, that includes the ones in Africa, like dutoni, and some of the other ones that are out there.

Dr. Jill 15:40
So I want to take a little, tiny commercial break and tell you a little, tiny piece of my history because I think some people can relate to that sometimes. I was 25, and I had breast cancer. Six months after my chemotherapy, radiation, and toxic treatment, I developed Crohn's disease. Now, interestingly—and I think you'll get where I'm going with this in a minute—my Crohn's [disease] presented with cyclical fevers. That was it. I didn't have gut pain. I actually didn't initially have diarrhea or bleeding. I only had cyclical fevers and granulomas. Now, in hindsight, I have tested

positive for Midwest hermsii, the tick-borne relapsing fever, Bartonella henselae, and also Babesia and Borrelia. So really, all four of those.

Dr. Jill 16:20
I suspect that my trigger for Crohn's, and maybe my presentation—and this is just me postulating; I have no sound evidence for it; N of 1 equals me—the chemotherapy dramatically dropped my immune system. So I almost had an induced immune deficiency based on three toxic chemotherapeutic agents. I think I had a dormant case of Bartonella, Borrelia, and tick-borne relapsing fever. And after the chemo, it became active and actually started to present for me as Crohn's disease. Would that make sense from what you've seen as a postulation of how I developed Crohn's and autoimmunity?

Dr. Richard Horowitz 16:54
Oh, not even a doubt. First of all, Borrelia causes autoimmune reactions in the body, as do environmental toxins, as you well know, because we're seeing it all the time. But now I would not at all be surprised because, when you look at the number of people now that are coming in with that trio of Babesia, Bartonella, Lyme, I mean, most of the sickest patients are all coming in with it. And of course, any immunosuppressive drug, right? I mean, they're giving dexamethasone now to COVID patients in the hospital. My greatest fear for some of these people is that if you've got a chronic Lyme patient and they're giving them high-dose dexamethasone, and let's say they have parasites, you're going to start to reactivate some of those infections.

Dr. Richard Horowitz 17:32
That's why, by the way, I have some exciting news I wanted to share with you and everyone [else]: Congressman Chris Smith had me on the phone about a week ago. There was a patient in the hospital in New Jersey who was a chronic Lyme patient with COVID. He was on a ventilator. Now, this was already day, like, 25. He was not doing well. He was on dialysis. He had heard about my protocol from Pat Smith. So I was on the phone with the hospital administrator, trying to get him IV glutathione. Well, fast forward: The hospital would not do it because it wasn't a drug and they didn't know how to use it or the sourcing I was getting it from. Lo and behold, the patient has died.

Dr. Richard Horowitz 18:14
So Congressman Smith was on his way, driving three and a half hours in one direction to pick up glutathione vials from me, when he had to turn around. He was so frustrated with this—and I don't even know his relationship with the family—that the next day he said to me: "I'm going to get the head of HHS, Alex Azar, on the phone. I want you to speak to him about your protocol, and let's see if we can get a randomized trial." So as per his word, the next day I was on the phone with the head of HHS. Other doctors were also on the phone with Congressman Smith, and it looked like they were going to try to fast-track it through the NIH. Kristen Honey was with me. We corresponded a few days ago, and we're going to try and get this through to try and get an ivermectin-glutathione protocol for COVID.

Dr. Richard Horowitz 18:59
Also, today, I was emailing someone that he put me in touch with to get a randomized control trial on the double-dose dapsone protocol that we'll discuss today. So I'm really trying to move this ahead because, as you said earlier, there are a lot of people who don't believe this, who don't believe that this is a chronic, persistent illness. And the only way we're going to convince the mainstream medical establishment is that we've got to do a randomized trial.

Dr. Jill 19:24
Absolutely. And I just support you in every way. Any way that I can be a part of that, I am in because I see this as the epidemic. Now, something you mentioned earlier that I think is relevant for people who are listening, whether you're a practitioner or a patient, to understand this is that I think part of the thing we're seeing is immune system suppression. That can happen in many ways. But what I've seen over the last 10 years at least is that there are much more chronic, severe, and complex illnesses than there were even a decade ago.

Dr. Jill 19:51
My theory on that is that our environmental toxic load, whether it's mold, heavy metals, or chemicals in the environment, our air quality, and our food quality, are all decreasing. So our immune systems are having this onslaught of toxins that are suppressing them. Or, like you said, steroids or immune-modulating drugs—all of these things that are suppressing the immune system and these old dormant infections that, in some people, they could walk around with if they have a very

robust immune system and not be very symptomatic. Or all of a sudden the bar drops and they start to pop up, and that's what you're talking about with dexamethasone or any other exposures. Would you agree that the environmental toxic load is part of why we're seeing much more prevalence of this?

Dr. Richard Horowitz 20:30
Oh, not even a question. I'm convinced of it, especially with the mold. You see all these people coming in with gliotoxins, right? Almost all the patients are showing up [with them]. It's an immunosuppressive toxin, apart from mercury, and some of these metals [that are] driving autoimmunity. At this point in the medical literature, they have linked up PCBs, dioxins, and plastic pesticides to autoimmune illnesses. So it's not really surprising. You put Borrelia on board with that—that drives autoimmunity—with these environmental toxins. Why would any of us be surprised that our immune systems are having a tough time keeping up? And we see about 70% of our patients with low adrenals. If your adrenals are low, you can't fight the infections. We check natural killer cells and T cells. We find them low in patients where we've got to use beta-glucan or transfer factors. So, there is not even a doubt that people's immune systems are being affected.

Dr. Jill 21:21
Yes. To me, that's a perfect storm because I really believe there are still thousands of people walking around without symptoms who, if you were to check, might have those spirochetes or co-infections in their bodies but whose immune systems are robust enough to keep them in check. So there are people who are asymptomatic. But what we see in our clinic are those who have lost that ability to suppress this. And really, part of the treatment is absolutely the medications. We all use the modulators of detoxification and the immune system, as well as all the other support that we use, because you have to look at all this. But a big piece of this is that if you can get the immune system working with you with the protocols, that's how people recover and go into remission. Their immune system is a piece of the puzzle, and then all the things that we do to suppress that infection are the other piece of the puzzle.

Dr. Richard Horowitz 22:05
And with Lyme, Dr. Freeman and I published this a couple of years ago. We did two precision medicine papers in the *Journal of Healthcare* and in the *International Journal of General Medicine*. We found that 7% of our patients had a chronic,

variable immune deficiency. They had low immunoglobulin G. They couldn't fight infections. Subclass deficiencies: 1 and 3—the big ones. They go up in Lyme and acute, and they go down with chronic. So, yes, there's a lot of immune suppression that we're seeing in these patients. And it was up to, I think, 75% to 80% of our patients had subclass deficiencies from Lyme alone because they've shown that when Borrelia invades the body and gets into your lymph nodes, it attacks the parts of your lymph node that make IgG antibodies, which is why you get the CDC-positive IgM western blots. It's because it's basically shifted your T-cell response. So, yes, it's a big problem.

Dr. Jill 22:55
So if you're a patient—both of us in clinical practice—I'm checking every single person I see for total IgG, IgM, IgE, and IgA, and then the subclasses 1-4 of IgG, which are critical. And as you mentioned, chronically, they can be acutely elevated and then chronically more suppressed, especially type 1 and type 3.

Dr. Richard Horowitz 23:16
Yes, although I've also seen high IgMs in some of these patients too. Yes, I've seen it both ways.

Dr. Jill 23:23
And then we look at myelodysplastic things, and that's all negative. It's just that Lyme is causing the reactivity of the immune system, and then, like you said, the gliotoxin and, actually, mycophenolic acid, which is another massive immunosuppression from Aspergillus and penicillium. Literally, the mold creates a toxin that causes immune suppression, so it's this perfect storm. And clearly, you're seeing more mold as well. Now, say you have someone with Borrelia, co-infections, or a moldy home. Is there an order that you treat that? Do you try to work on getting them out of the mold and then treat the Lyme? Or do you do it simultaneously?

Dr. Richard Horowitz 23:57
I do a lot of it simultaneously. You probably do, too. If someone, for example, has a leaky gut and difficulty with their GI tract, you've got to work on the GI tract first and get the liver detox pathways working. But a lot of times, I can do a lot of this together. I found that oral phosphatidylcholine with some liposomal glutathione and a little bit of clay charcoal—sometimes Questran—seems to work and get it out.

But of course, the problem for people is if they're still in the environment and don't have any place to go. That is a problem for some of the patients.

Dr. Jill 24:27
Yes, I feel like that's my most difficult clinical conundrum: Having the right environmental experts to take care of their home because that's not my expertise. But I know that they can't get well if they're still living in a water-damaged building that's significantly affecting their immune system. You mentioned COVID and the ivermectin trial, potentially with glutathione. And I think I recall you mentioning that you had been using glutathione, N-acetyl cysteine, lipoic acid, and then also ivermectin. Is that the basics of the—

Dr. Richard Horowitz 24:56
Yes. For those of you who aren't up to date on all the COVID literature, I published two articles this past year on COVID-19. One was in the *Journal of Respiratory Medicine Case Reports*. It was [about] two patients who had COVID pneumonia and were getting very sick. One almost ended up in the hospital. His oxygen stats were starting to drop, and we gave them first oral and then IV glutathione in both of these patients within one hour of taking glutathione, along with N-acetyl cysteine, which is a precursor that helps to drive glutathione production, and alpha lipoic acid, which also helps to regenerate intracellular glutathione.

Dr. Richard Horowitz 25:33
The reason I came up with this protocol is because when I was looking at the cytokines, the inflammatory molecules from COVID, they looked exactly the same as the ones I was seeing with Lyme. For the last 20-something years, we've been blocking the switch inside the nucleus called NF-kappa B using NAC, alpha lipoic acid, and glutathione. I thought: "Well, that's interesting. Let's try it in COVID." And it's worked. At this point, I've treated about 30 COVID patients. Not one of my chronic Lyme patients has ended up in the hospital using this protocol. So I'm excited.

Dr. Richard Horowitz 26:03
And ivermectin is interesting because before I started using it, we were looking at Alinia (nitazoxanide), which also affected the SARS virus previously. And a lot of these antiparasitics have very good antiviral properties. There's a study on ivermectin through Leon Caley that [shows that] a large dose in culture drops the

viral load by 5,000-fold within 72 hours. And they did a randomized controlled trial through Europe and the US. They found that people on ventilators did way better when they were on ivermectin. So that's why I'm trying to get a randomized controlled trial in the United States.

Dr. Jill 26:40
Excellent. And you mentioned IV glutathione. Obviously, that's more effective than bypassing oral, which is not well absorbed. But have you treated patients with liposomal and oral of those three?—the lipoic. Or is it only IV protocols?

Dr. Richard Horowitz 26:51
Oh no, most of them are actually oral. And what was kind of funny is that there are patients who I've treated and have gotten better, and about three months ago, I got an email from family who I hadn't seen in a couple of years. The family got COVID, and they had seen the articles I published. They got glutathione, took it, and they had the same response. Within an hour, they felt better. Their fatigue was lifting, their headaches were better, and their shortness of breath was better.

Dr. Richard Horowitz 27:18
An emergency room doctor on the front lines of New York City was disabled with COVID pneumonia with oxygen saturation [levels] in the 70s and couldn't go back to work. I gave him the glutathione protocol: NAC alpha lipoic glutathione—oral, not IV—with ivermectin. Ten to fourteen days later, he was back to work. His pneumonia completely cleared, and his oxygen saturation [levels] got better. He sent me pictures because he was with his fiancee, and he was really worried that he would never be able to perform as a physician again on the front line. I've seen it work; it's just now a question of proving it with randomized trials.

Dr. Jill 27:51
Yes. And it makes sense because, as you said, whether it's LPS-induced endotoxemia in the gut or whether it's Lyme disease or even mold or a cytokine storm, these are all similar pathways—one of them IL-6, and then many, many more. To those of us who are functionally minded, this makes perfect sense because it's a common denominator to all of these chronic inflammatory and infectious processes. So we can apply the same types of protocols and treatments even though there are slightly different infections that are contributing to them. So I love that that's clear.

Dr. Richard Horowitz 28:23
By the way, for people that want to actually see the science behind the protocol, one or two days ago on my Facebook site, which is Dr. Richard Horowitz, I posted a seven- to eight-page scientific document that I sent to Kristen Honey in HHS, which was the scientific basis for using glutathione and ivermectin. So for people who want to see it, you just have to scroll down a couple of posts that I did, probably a day or two ago. You'll find the document, and you can use it for yourself and bring it to your healthcare provider. You might find it quite useful.

Dr. Jill 28:55
And I will find that link and link it up. So if you're watching this or watching a recording, it will be below our Facebook live here shortly. I'll make sure to include that link as well. One thing I wanted to explain to those listening—you and I know this well—with Lyme, there are different forms of Lyme, and that's why the dapsone and the disulfiram can work. Can you explain a little bit about why persisters are important, what that means, and why we have to treat them in order to get a cure?

Dr. Richard Horowitz 29:19
Sure. For those of us who've been in the field for 30+ years, we used to think that the reason Lyme persisted in the body was [because of] what were called cystic forms—otherwise known as L-forms, S-forms, or cell wall-deficient forms—or that they were hiding in the intracellular compartment. That was our belief up until about seven years ago. And then, all of a sudden, Kim Lewis from Northeastern, Eva Sapi at the University of New Haven, Dr. Ying Zhang from Johns Hopkins, and Stanford researchers all started discovering that there were biofilm forms of Lyme disease.

Dr. Richard Horowitz 29:52
Now, for those of you who don't know about biofilms, you do because you go to the dentist to get the plaque taken off of your teeth, and that's a biofilm. In fact, the bacteria I was talking about earlier for Alzheimer's, Porphyromonas gingivalis, is what happens when you don't brush your teeth with gingivitis. It can go straight up into the brain and cause an inflammatory response. So regarding this, we sent this protocol out. We've been trying it, looking at biofilms and persisters.

Dr. Richard Horowitz 30:20

But the persister literature—the reason I came up with it is specifically dapsone. When Ying Zhang published on persisters—this is five or six years ago—we all knew that Lyme persisted. But I never thought of it in terms of, "Oh, it's a persister like TB, like leprosy, like mycobacterium." It's like the light bulb went off in my head and I went: "Hold on, when I was doing my residency at Mount Sinai, I was treating HIV patients all the time with Mycobacterium tuberculosis or MAI." So I was used to using rifampin, INH, and pyrazinamide in these drugs. I really wanted to use them, but I didn't have a reason to use them until a few years ago.

Dr. Richard Horowitz 30:58
I went to the literature and looked up, "How do we treat, for example, leprosy?" For leprosy, they use rifampin and dapsone, and I said, "Okay, hold on." I looked up dapsone's qualities, and it lowers inflammation—great because the reason you're sick from Lyme is from inflammation. It has anti-malarial effects—oh, great because babesia is in most of my patients. It hits persisters, and it's used for autoimmune illnesses, which we see in Lyme patients. So it had these four prongs. And I said: "Jeez, why don't I just add doxy to it in case people have Ehrlichia, Anaplasma, etc. I came up with doxycycline, rifampin, and dapsone as the protocol. So we published several studies. Dr. Freeman and I published two separate studies of 300 patients who did dapsone protocols up to 100 milligrams, which is the standard dose, and it worked. It helped with eight major Lyme symptoms. But here is the catch: It helped most people, except that when they stopped the protocol, they relapsed after a certain period of time.

Dr. Richard Horowitz 32:00
I forget if it was Louis Pasteur, [but] someone was talking about when chance meets science at some point. Some guy accidentally came into my office and took a double dose of dapsone. This goes back to, like, two years ago. He was very ill, and I went: "Oh my God! You could have killed yourself. Get off the drugs and come back in a month." He comes back in a month. This kid was in his 20s. He was sick for like seven or eight years; in bed, couldn't work, couldn't go to school. He comes back a month later, and he goes: "Doc, I feel great, like, I've got no symptoms." I mean, he needed IVIG for a little bit of immune deficiency. And I said: "All right. Hold on. Don't take anything else. Come back in three months." He comes back in three months and says, "I feel great." He comes back in six months; "I feel great." This went

on for a year until he got 16 tick bites in Maine—a whole other story. They were strangling him at that point.

Dr. Richard Horowitz 32:50
So I turned to my wife and said: "Hey, honey, would you like to be a guinea pig? I have a protocol" because my wife had suffered from chronic Lyme for the last 30-something years. She did the lower dapsone, and at 50 milligrams, when she stopped it, she was PCR-positive in the blood for Borrelia. She did 100 [mg]. She liked it even better but relapsed. She did the double-dose dapsone protocol almost three years ago. Her Lyme symptoms have never come back. And what's really fascinating about this is that it's an eight-week oral protocol. It's eight weeks of oral generic antibiotics, doxycycline, rifampin, and dapsone, with plaquenil, nystatin, three biofilm agents—stevia, biocidin, and seropeptase—and probiotics for the gut, obviously.

Dr. Richard Horowitz 33:38
But the really great news is that Eva Sapi, I, and Dr. Freeman published one month before the article came out that in culture, when we looked at the doses of dapsone and these different drugs in combination, it turned out that the higher the dose of dapsone, the better it affected the biofilm forms of Borrelia. So these persisters are hiding in the biofilms. If you don't open up the biofilms and hit the persisters, you can't get rid of the disease. So we are on the cusp of a true possible cure. No one dared use this word for 30 to 40 years. I can use it now. We are on the cusp because it is clearly the biofilms and the persisters that were the problem.

Dr. Richard Horowitz 34:21
But in the study we just published, what was also important—and this was in the Journal of Antibiotics for people that want to see it; maybe you can post it on your site, Jill—is that if you had active Bartonella by Bartonella FISH testing from IgeneX, I think 8 or 9 out of 40 patients who were Bartonella FISH did not go into remission. They all improved; 98% of the patients improved on this protocol. Forty-five percent went into long-term remission for one year or longer. Fifty-eight percent of the PTLDS, post-treatment Lyme, went into remission for a year or longer. But active Bartonella prevented full remission, as did half the cases of Babesia.

Dr. Richard Horowitz 35:02

So, take home message: You've got to go after the Babesia and Bartonella before you treat with this dapsone protocol. Or, my next step is to combine things like using Zithromax with dapsone, rifampin, and doxycycline, maybe adding extra methylene blue, and using the pyrazinamide that I published on Bartonella. You've got to add things on for the Bartonella because we're having a big problem treating it.

Dr. Richard Horowitz 35:29
But even just last week—I think the universe is favoring me on this one—there was an article published on essential oils. They talked about how if you get the right combination, like cinnamon, oregano oil, clove, and peppermint, if you add these to gentamicin, which is one of the few drugs I've ever found for Bartonella that has been effective in putting it in remission—but I hate using it because of ototoxicity—the essential oils lowered the MIC, the minimal inhibitory concentration. Maybe we can use gentamicin at half the dose or a third of the dose with essential oils so you don't get the toxicity. We have a cure for Bartonella. And then we're going to see all these people go into remission from an eight-week oral protocol. I mean, it's really, really exciting.

Dr. Jill 36:15
Unbelievable! And I'm going to share your new research, and again, we are so grateful for you being on the cutting edge. So just to repeat what I understand, some of the triple intracellular... hitting the Bartonella and Babesia are ideally done before to lower the load. And then this is kind of at the end of that eight-week treatment for persisters. And that's when you're getting the best results. That's kind of what I've been doing too, trying to really get the load down first. Now, we didn't mention disulfiram. That's something that has been used, of course. Dapsone, it sounds like, is actually more effective with fewer side effects, potentially, because it's a shorter course. I'm seeing a lot of side effects with the disulfiram. But what are your thoughts on disulfiram? Is that still—

Dr. Richard Horowitz 36:56
Yes. So there are side effects with both drugs. The thing about disulfiram—the problem with the drug—is that its half-life is 14 days. I have people at 62.5 milligrams once a week. That hurts with this drug. I mean, it's very powerful. So right now, I'm not going past 125 or 250. Glutathione still helps when people do get Herxheimer reactions, but the problem, of course, is the neuropathy. And we gave it

to about 150 people; 5 out of 150 developed neuropathy. Fortunately, most of them are reversed over time. We gave them mitochondrial support, high B vitamins, etc.—benfotiamine.

Dr. Richard Horowitz 37:29
They are getting better, but the problem with the drug is that it's really toxic for people. The fatigue and the brain fog—when they have a Herxheimer reaction, they can't go to work for days. Dapsone only has a 24-hour half-life. So if you get side effects from dapsone and you stop it, it's out of your body very quickly. And we've learned to minimize the side effects, like the anemia from dapsone, with just very high doses of folic acid. We've learned to minimize methemoglobinemia, which is when oxygen is not carried properly in the blood. It's a side effect of dapsone with methylene blue, which, lo and behold, is a drug that's been shown to be helpful for Bartonella. So it all kind of intertwines.

Dr. Richard Horowitz 38:09
By the way, I've used disulfiram and dapsone together. There are people who swear that the combination of the two together works better for them. Where, for example, I couldn't get them at higher doses of dapsone, they couldn't tolerate it. I've used low-dose disulfiram with lower doses, and there's definitely a synergistic effect. That's a whole other study that needs to be done at some point in the future.

Dr. Jill 38:30
Gosh, I just love that you're doing the research and leading the edge on this because we need good treatments. My experience with disulfiram is that it's very good for Borrelia and Babesia but not so good for Bartonella, so we're back to that difficulty with the relapses due to Bartonella. And again, just to repeat, you're going for treating the Bartonella the best that you can before launching into one of these courses.

Dr. Richard Horowitz 38:52
I think that makes sense. Now, the problem is that we don't have a cure for Bartonella. There's a patient in Arizona I treated literally for 13 years, [and] within days of stopping—she was on at least four intracellulars at the same time, minocycline, rifampin, and pyrazinamide—she would relapse within days. At one point, I gave her minocycline, azithromycin, rifampin, and pyrazinamide. I published on pyrazinamide for Bartonella about four years ago in a Behcet patient who

responded beautifully, and it turned out it was Bartonella. My take at this point, by the way, on Behcet's [disease] is that it's probably Bartonella quintana with parasites.

Dr. Richard Horowitz 39:27
But in any case, when I added gentamicin—that was the only different drug she did—she's now been in remission for three years and has never had to go back on antibiotics. This is why this essential oil paper that just came out may be the way to use this drug effectively and safely, because I am scared to use gentamicin at this point in time. So I think I'm going to go back to Dr. Sapi or even Ed Breitschwerdt and say: "Hey, guys, we need to do some culture studies of these combinations with essential oils. Let's see what hits Bartonella the best. And let's then bring it into the clinic and see what we've got."

Dr. Jill 40:01
Yes, and that's the beautiful thing about what you and I do and all of our colleagues out there. Our conventional training is the best in the world, and we're using that and drugs that are very appropriate to treat these infections. But when we bring in the liver support, the detoxification support, and the support for the gut, which is usually nutrient-based, and we think about essential oils or biofilm disruptors—many of which come in a natural form like serratiopeptidase, biocidin, NAC, stevia, and others—we really get the best of both worlds. And I don't think we could treat Lyme purely with one side or the other. We need this combination.

Dr. Richard Horowitz 40:36
Oh, absolutely. I could never do it because we need glutathione for the Herxheimer reactions. We need massive amounts of good probiotics to keep the gut in order. But the beauty of the eight-week protocol—if we can prove that this works—is that there are no more long-term antibiotics for Lyme disease. You're talking about still replacing the microbiome afterward, but nothing like what we have to deal with.

Dr. Jill 40:59
Exactly. And again, I do a lot of inflammatory bowel [disease] because of my history, and I see a large percentage of Crohn's and ulcerative colitis caused by either Mycobacterium species or Lyme. So again, these things that are presenting are

labels. Chronic fatigue, fibromyalgia—all these things are labels, and what we often find underneath are these infections.

Dr. Richard Horowitz 41:20
In fact, Garth Nicolson even published on mycoplasma species with Crohn's [disease] years ago. I mean, there are lots of these things that show up in the literature.

Dr. Jill 41:27
And interestingly, that's when I first started doing triple intracellular before I knew you. Well, I knew you, but I hadn't taken your course. I was doing clarithromycin, rifampin, and usually one other intracellular agent, and I was getting a reversal of Crohn's disease. I thought, "Well, we had MAP positive," right? So I was thinking of treating MAP. And then, when we talked, I said, "I wasn't treating MAP. I was probably treating Lyme and co-infections, or at least both things, because it's the same treatment."

Dr. Richard Horowitz 41:52
And you know that they found Lyme and co-infections in the GI lining. There's a gastroenterologist in New Jersey, Martin Fried, who did the biopsies years ago and proved that they were there. So, yes, they may be causing an inflammatory reaction in the gut.

Dr. Jill 42:05
And from what I understand, Bartonella—granulomas, cysts, and lesions—is very good at disrupting collagen. So the granulomas and Crohn's could very well be related to Bartonella.

Dr. Richard Horowitz 42:15
Absolutely. That's one that needs to be examined. That's a good point.

Dr. Jill 42:20
Yes. This is fantastic. So I'm going to link to your articles. Is there anything else you've been working on or published recently that our listeners should know about?

Dr. Richard Horowitz 42:28
No. The two dapsone articles—the one in Springer BMC and *Antibiotics*—are the

two latest. In the last year, I've been quite prolific. I still work for HHS. I was on the tick-borne working group, and I went down to two days a week when I started working for them. But this past year, I was on their HHS Babesia subcommittee, and Sam Telford was great. He and I did the chapter on Babesia. So that's also why I'm so up on Babesia. But I published, I think, seven or eight articles this year, one with Dr. Shah on the use of the Babesia FISH test as being one of the best tests for finding Babesia.

Dr. Richard Horowitz 43:03
So for those who are looking for Babesia or Bartonella, I think, again, that IgeneX FISH testing is wonderful. I can't, unfortunately, do Galaxy labs in New York. They have a new PCR, their dd—direct droplet—PCR, that looks very sensitive for multiple strains of Bartonella. So for those who can use Galaxy, absolutely use it. But we published an article on Lyme and environmental toxins that drive a lot of these chronic diseases. So yes, there have been a lot of publications this year.

Dr. Richard Horowitz 43:30
I finally had time to kind of catch up—one on pregnancy, showing Lyme and pregnancy with Babesia that you can treat with clindamycin, Mepron, and Zithromax in the third trimester safely. That was a case study that I published. Then Dr. Freeman and I published two COVID articles. So yes, it's been a prolific year. I'll send you the links for all of them so people can see.

Dr. Jill 43:52
Wonderful. And I will share those. This is incredibly exciting. And again, we're so grateful for you leading the edge on this. Two quick questions: Tick-borne relapsing fever—would you lump that in? Because it's similar in treatment if you're doing Borrelia with triple intracellular. Is there anything different with tick-borne relapsing fever?

Dr. Richard Horowitz 44:09
I don't think so. And that's, of course, a good question to which I don't think anyone knows the answer. But I think it will probably still work. But because we don't test for it—a lot of doctors don't test for it—and we don't have large studies on it, it's kind of difficult to know exactly. But I would imagine it probably does work.

Dr. Jill 44:25
Yes. And then the second thing is that, in my clinical experience, Babesia really amplifies and makes these worse. Is that true? Would you say that when someone has, really, any co-infection, but especially Babesia, it tends to make the course a little bit more difficult and linger long-term? What's your experience with Babesia being in the mix?

Dr. Richard Horowitz 44:44
Absolutely. Babesia makes people three times worse. It was published in JAMA by Peter Krause in 1996, about these people getting worse. Essentially, what happens with it is that these people who present with day sweats, night sweats, chills, flushing, air hunger—"I can't catch my breath"—or cough are, obviously, the ones that have Babesia. By the way, I've probably seen about one in a hundred [people] who don't even have the malarial symptoms and still test positive. But yes, it absolutely increases the underlying severity of the illness. And that's why, most of the time—I think you and I are seeing the same—it's Babesia, Lyme, and Bartonella. They're showing up in a triad. I mean, we're also picking up mycoplasma, [inaudible], and the rest. But that triad specifically.

Dr. Richard Horowitz 45:30
We're now looking at tafenoquine. It's a newer drug, an anti-malarial. I'm just starting to test it out now for Babesia. There are very few Babesia treatments that have come out. In the HHS tick-borne working group report we did, there's no cure for Babesia, so we list all the treatments. I think they lower the load of the parasites, but it is very difficult to get rid of 100%. So we'll see if tafenoquine has some studies. And I know that Dr. El-Khoury at Yale presented to our committee, and he's got some really interesting research, which I'm sworn to secrecy [about] and can't talk about. But he's probably going to be publishing some very interesting information on drugs that you would not suspect, just like with disulfiram. You would not have suspected that it hits Lyme. The same thing with Babesia. I think he's looking at some really interesting older drugs that may have a good anti-malarial effect.

Dr. Jill 46:22
That's what I love about these. In med school, we have this one line of "this drug treats this," and it's not that way with what we're using. And the more we think outside the box, the more I think we're going to find curative treatment regimens

for Lyme and co-infections. Last little, really quick fire: A PCR versus FISH for Bartonella and Babesia. I've been doing both. Is this one better than the other for detecting—

Dr. Richard Horowitz 46:44
I'm finding the FISH [test] to be way superior. And that's been showing across the board for me. The FISH testing seems to really be an excellent test for picking up Bartonella. That's why I published it in the recent study that we did. And by the way, for those who are listening, I just want to remind you: We did not really talk about prevention at all, but please be aware that a lot of people are still not doing tick prevention like they should. You've got to be looking at using permethrin on clothing—unless you're really chemically sensitive—and using things like picaridin, 20%, on the skin. I've tried 5% and 10%; it doesn't work. The mosquitoes come after me like crazy because of my carbon dioxide, like, 'shvitz'—like crazy all the time.

Dr. Jill 47:25
I have to agree because we don't like toxic chemicals, but in this case, the prevention is so much better than the cure that I highly recommend permethrin.

Dr. Richard Horowitz 47:32
I don't use DEET. I mainly use picaridin at this point—20% with that. And nootkatone, which is a citrus-based soap—it's from the CDC. It's going to be released in the next couple of years. And it has a very high efficacy, actually, for repelling ticks. So you'll be able to actually use a soap that's a tick repellent. Stay tuned because it's got a nice citrus smell, and that's going to be coming out very soon. But please, I beg of everyone, you've got to be very, very careful with this because once you get this disease... I mean, yes, we're coming up with solutions after 40 years of doing this, but you don't want to get there because there are people that still die from Ehrlichia, Anaplasma, and Rocky Mountain spotted fever.

Dr. Jill 48:13
Absolutely. And then one last little thing, and then I want to be sure and ask where people can find you and take your course if you're a physician. In treatment, we talked about triple intracellular and some of these things you can do to reduce low... Rifampin—are you going up to like 600 or more per day in those intracellular [treatments]? Are you going pretty high on that? And rifampin versus rifabutin—any comments on that?

Dr. Richard Horowitz 48:32
Yes, that's a great question. You and I could be speaking for hours here. Maybe one day we will, for all the doctors listening. So I still stick with rifampin more than rifabutin for several reasons. The half-life of rifabutin is much longer. And I've seen side effects of rifabutin with lower white cell counts, platelet counts, where I don't usually see them as much with rifampin. So I tend to use rifampin. It's generic, and the insurance companies approve it. It's like 400 bucks out of pocket to do rifabutin. But that being said, what I'm now starting to do for Bartonella as a trial, and I don't have the results yet... I already know that a regular dose of rifampin at 300 [mg] twice a day is not enough.

Dr. Richard Horowitz 49:12
I'm now double-dosing the rifampin as a pulse two days a week. So for example, on a Monday and Thursday, or Tuesday and Friday, I'm using 600 [mg] twice a day to try and see because we found in Dr. Sapi's studies that I did with her that rifampin actually acts as a biofilm agent as well. We didn't know this until we actually did the culture studies. Because we now know that Bartonella has persisters and biofilm forms in the same way, it's possible that the higher doses may help with the biofilms.

Dr. Richard Horowitz 49:41
But my next step is now to try these new essential oils like cinnamon, clove, oregano, and peppermint that just came out two weeks ago—published—to see if these are more effective for Bartonella biofilms with double dosing the rifampin with [things] like doxycycline, pyrazinamide... Starting to do the multiple intracellulars, and then seeing if we can do some studies eventually and culture on Bartonella using lower doses of gentamicin with the essential oils to see if it works. I think that's going to really be the next step that's going to move this ahead.

Dr. Jill 50:11
That makes perfect sense because that's what I'm running up against too: How high can I go? What's the toxicity? And then last thing: Malarone versus Mepron—any preference for treatment of Babesia?

Dr. Richard Horowitz 50:20
I hardly use Mepron anymore. It used to be called 'liquid gold'.

Dr. Jill 50:23
There's more resistance, right?

Dr. Richard Horowitz 50:24
There's resistance to it in the United States. By the way, for those who want to learn about tick-borne disorders, I was on the first round of the HHS Tick-Borne Disease Working Group, and I was the co-chair of the other tick-borne infections and co-infection subcommittee. Well, there are new reports that have now come out on the HHS 2020 site for Ehrlichia, Anaplasma, Rickettsial diseases, and Babesia. If you read the Babesia piece that Sam Telford and I do, you'll get a complete overview of what's going on. It's got the most up-to-date literature review. So it's a really great place for people to go to get up-to-date literature because these are some of the best scientists in the world who come together on these subcommittees to produce the reports.

Dr. Jill 51:05
Fantastic. And again, I'll be sure to get those links from you and make sure everybody has them on here and then on YouTube. So where can people find you? Of course, we'll keep links to your site, but where can people find you and find more information?

Dr. Richard Horowitz 51:18
The main social media site where I'm posting a lot these days is Facebook, which is Dr. Richard.Horowitz, I think, or Dr. Richard Horowitz. If you want to keep up to date with what I'm doing, I'm usually posting what I think is the most important literature on Facebook. I'm only doing this once a year: I'll be doing a virtual course for Lyme and tick-borne infections. You were the last group that did it in person. And of course, we have a great time doing it, but we can only fit 40 people in that room. We can't get past… The last one, we doubled the number of attendees. I'll probably be doing it, I'm assuming, in the spring or early summer, probably sometime next year. And probably the best way to learn about it is [through] my office email, which is medical@hvhac.com. It stands for Hudson Valley Healing Arts Center. So, medical@hvhac.com. If you want to learn about the course and get more information, my office staff will get your information, and we'll get you whatever you need.

Dr. Jill 52:26
Perfect, and again, this will go out to practitioners. So if you're a practitioner, I just want to give my endorsement. This is one of the best educations. There are a lot of things out there, but Dr. Horowitz, you put on a great... You just pour out your heart, your soul, and all the information, just like today. You just fit about three or four hours of information into less than an hour, and we love it. We appreciate it. And if you are a practitioner wanting to learn more, I highly recommend this course.