Introduction and Guest Background

Through. Hi, doctor Paul here again. And today I have a very special guest, Doctor Casey Holland. And, we're going to be talking about another one of our favorite topics.

That's Epstein-Barr virus. So we're going to have Doctor Holland talk about her background and her history, and then we'll jump right in. Sounds good for having me, doctor Pollack.

I am Doctor Casey Holland, and I started seeing Epstein-Barr virus. Actually, when I was still a student in school. And, I just kept having patients where they had all these symptoms of chronic fatigue, joint pain.

Some of them had herpes presentations of cold sores on their face. And the only thing that really showed up was their Epstein-Barr virus titers were elevated.

And at that point in time, there wasn't medical medium at it. Published his book about Epstein-Barr virus. There wasn't really a lot of talk about it like there is right now.

And it was just kind of, well, support your immune system, hope that they do better. And I also struggled with Epstein-Barr virus kind of my entire life.

When I was a child, I had a very severe case, that knocked me out of school for three months. So it was always in my mind. And I think that's why I, you know, would always look into it with patients.

But from there it grew. And, I started, in my first year out during residency, I saw just tons and tons of patients. And it was it was no surprise when their Epstein-Barr virus titers were positive or elevated.

And it was really interesting to see who got better and who didn't, because some people were doing very extensive I. V. therapies. Everything under the sun had tried pharmaceuticals and they had no relief.

And others, you know, did a few things and, and some, some did some a mix of things and they did better. So I just really started paying attention to what benefited my own health.

During that time, I also had a very severe mold exposure that caused my EBV to reactivate. So I got to live through it again and really, experience it myself.

And through that, and then working with patients, seeing what was working and what wasn't, I really developed a passion for working with patients with chronic fatigue and reactivated Epstein-Barr virus, because I got tired of them hearing that their only option was maybe a pharmaceutical that technically isn't for that or to just go home and rest and hope that it got better when they were unable to do their daily routine in their life.

And so, through that, I have just wanted to share with people their options and help them understand what's really going on with the Epstein-Barr virus.

And it's that's what I've been focusing on ever since. Well, let's go back into your background. Okay. What about the college? So you went to got your, bachelor's degree, right.

And tell us what, that was in cell biology and neuroscience, from Montana State University. So why didn't you go into basic science? Why don't you go and get your PhD?

Well, I actually was in the process of doing that, and I was working in a lab, and we talked, we were working on showing how liver cells can regenerate and heal.

And I, we were using mice models and, I just really wanted to work with people more, and I wanted to test natural therapies because the therapies that we were using were always, you know, pharmacy based.

And I wanted I wanted to work with people and apply it more specifically to patient care and not have to wait through grant process writing and years and years of this research to see it.

So I guess I was a little impatient. Well, we're we're lucky for that. So, after that, you went into naturopathy. Did you have a break between your B. S.

degree and, going to naturopathic school? No, I didn't, and actually, when I was growing up, the nature of that doctor was really what helped me. So I had kind of thought that that's what I would do.

So I just went. I went straight ahead for it directly. Waterfall.

EBV, Chronic Symptoms, and Reactivation Triggers

So, because of your experience, your, your personal experience, but also obviously having worked with a lot of people with this condition, you decided to become a what you wrote in your bio, dealing with what you call the toxic trail.

Yeah. So the one thing with Epstein-Barr virus that I've really noticed is that a lot of times people think that it's causing all their symptoms, and it's the only thing that is causing problems, but usually there's other things involved.

Rarely do I see it ever be just Epstein-Barr virus. So we see a lot of, Lyme disease associated. And depending on who you're working with, a lot of people actually consider EBV almost a co-infection of Lyme disease.

And then we also see mold illness a lot, mold causes EBV to reactivate. And I know that we'll talk more about just what causes EBV to reactivate and why it does that.

But in a lot of patients that I saw in my first year out in clinic, that was part of the problem is we were only focused on Epstein-Barr virus, and we were missing what was causing it to reactivate in the first place.

So what percentage of the population has ever greater than 95% is is what they are estimating at this time? So we all have it. Yeah. Pretty much. Right.

Yeah. I mean it's because of that that medicine kind of discounted. Exactly. Right. Because ubiquitous everybody's got it. So why why are we worried about this.

It's got to be something else. So Gabby EBV. Exactly. Yeah. The medical community, I mean, the first time you get Epstein-Barr virus, it's usually considered, you know, we see it as mononucleosis.

It's considered self-limiting. You might have a more severe case, but you should be able to just rest and get better. And in textbook immunology and infectious disease, it's thought that our body is supposed to be able to then keep it in a latent state.

So the virus stays in our body. But it's in a state where it's inactive. So according to that, unless we're severely immunocompromised, it shouldn't be reactivating and it shouldn't be causing a problem.

And that's where the disconnect is with our conventional medical world right now, is we have people that aren't considered immunocompromised, that have it reactivate and have severe problems with it.

Now, most doctors I know, when I was a medical doctor and practicing regularly, we almost never tested for it or time that we ever tested routinely for.

It was in what setting? When you probably like a younger child or somebody that first got it and they did a mono spot, probably right. But after that, the most routine time to test for it was in people with transplants.

Oh, right. Right. Because they're on significant immunosuppression. So now with somebody who's immunosuppressed we are worried about any viruses. Right. All viruses can be a threat.

Share those viruses. You know CMV viruses you know hepatitis C but the list goes on and on. So then usually in these transplant patients before they actually do transplants, they will do a barrage of these viral titers.

Right. Just just to be sure. And then when you immunosuppressed them and they start having fevers and they start having all kinds of other symptoms, vague symptoms like what you're talking about in that setting, you understand the big symptoms and then you worry about it.

Right. Because you worry about host responses your worry about rejection problems and those individuals. So what happens. What happens then is medicine says it only it's really only really important in that setting.

It's not important to any other setting where clearly saying no, it's a bigger problem than that. If it's that ubiquitous, it's got to be a bigger problem than that.

It's just disguised. Right, right. Well we also see now that it's associated with seven different autoimmune conditions. There was new research published that it has a more direct role in Ms.

multiple sclerosis than we thought. And it's thought to be directly attributed to 200,000 cases of cancer each year. So the literature for how it is affecting chronic diseases is there now. But like you said, how how doctors present it and what they kind of are trained to look for that is still is still present in patient care.

So it's a, it's a, it's a much more common problem. And how immunosuppressed do you have to be to have a problem with it. Well, that's the interesting thing is I don't think that patients would be conventionally considered to be immuno suppressed.

You know, they haven't had an organ transplant. They're not on, immunosuppressant drugs or anything that are getting it. And things like mold illness can cause immunosuppression and immune problems.

That might not be a medical emergency at the time, but they are studying the setting, the ground for, for problems. So I, I guess we don't have we don't have like a scale that says if you have this, this and this, it's possible and people that don't have other diagnosed medical conditions but maybe have a heavy toxin load or other infections like Lyme disease that haven't been diagnosed or mold illness can be at risk of it reactivating or even just people that were in a car accident and had a major stressor or life change.

Anything that can cause a stress on the body like that and shift the biochemistry can be enough to trigger Epstein-Barr virus to reactivate. So is it probably.

It's more like a straws on a camel's back. Exactly. Yeah. It's like filling up that bucket that we all have until it's overflowing. Have you ever seen mold by itself with no other antecedent causes or any other causes to trigger it just by itself? Yes.

I mean, well I don't know because I think, you know, when people are exposed to mold, I can't say oh they haven't had any other toxins, they haven't had any other things in their life. Right.

We always think of things in the immediate of what has happened. But what about when we were in our mother's womb and the toxins that we were exposed to there?

So to measure all of that is really difficult. So I can't say with certainty that the only thing was mold, but I have seen EBV reactivate very quickly after a mold exposure, and that B when they had symptoms that were debilitating.

Well, how does more how does mold set the stage for triggering it. Yeah. So there's a couple different reasons. First off mold causes a lot of oxidative stress in the body.

And oxidative stress is when there's an imbalance of reactive oxygen species and not enough antioxidants to keep up with them. We want reactive oxygenation species.

It's actually what our body is creating in response to bacteria, viruses, toxins, stress. It's how we are. It's how we are built to handle it. And but we have to be able to clear it out.

So when we have an imbalance of that, we have a lot of oxidative stress. Now EBV actually has a signal on it, a protein, and it's known as VLF one. And when that can probably be, be left one.

Yeah B and then Z is in zebra lif one. And when that, when there is a certain amount of oxidative stress that signals and tells EBV, hey, it's a good time to be into an active state now and it'll start replicating.

Now the problem is that when that happens, guess what YouTube is doing? It's creating more reactive oxygen species. So it's feeding back and creating more so yep. And so mold can start that just with a lot of oxidative stress because mold causes so much oxidative stress.

The other problem with mold is that it can cause our B cells, which typically remember EBV and our helping fight EBV to forget the skin, the virus. So then when you have mold, you have kind of a double double whammy where you're turning the virus on and then you are forgetting how to fight it.

And so really, if you're in mold, it's I think it's probably very rare that you don't have it reactivate, but what percentage of the population has been exposed to mold?

Well, that's a great question. I mean, OSHA estimates that there's about 1 in 4 homes that have water damage that could cause health problems. But I think that we all estimate that it's higher than that.

So a lot of us have been exposed to mold, and some of us have genetic snips that can make us more susceptible to how we're able to detox it. So that's the kicker.

There, because some of us could be exposed to mold and be able to keep up with it and be okay with how we're detoxing it, and others can't. Are those snips just molds?

Are they mold specific that HLA Dr.. Is specific to mold, but there are other snips that aren't, you know, just mold. Somebody might have snips that make it harder for them to break down other toxins.

And some people are more susceptible to different things because of that as well. So you can probably most likely most of us have multiple, vulnerabilities, right?

Relative to the snips. Right. What are the things activate. I know you talk about oxidative stress. So there's a lot of stuff that can create oxidative stress.

Right. So that's a common denominator about right. But you're saying that's a common denominator for activation or reactivation of EBV. Yep. So I mean even just daily stress of our life and stressful job, stressful relationships, things like that.

Actually, when I talk to patients, stress is the number one thing that comes up and is what it's kind of known to reactivate from, you know, oh, they had an EBV reactivation because of stress, but other things can reactivate it to, for example, Covid.

We are seeing that, most long haulers, patients, they're finding higher titers of Epstein-Barr virus post-Covid. Even if you're not a long hauler post-Covid, it's possible that the oxidative stress from that infection could do that.

The flu and other viral infections can do it as well. Lyme disease is parasites, other toxins. One toxin that I think is getting attention more. And that has to do with a lot of this as well as glyphosate.

We see, around. Yeah. Yep. You know, we are finding out now and more is being done now about the toxicity of that. But, you know, Epstein-Barr virus was originally most associated with Burkitt some trauma.

And we see wound up being associated with lymphoma and being extremely toxic. And the problem with it is that it's been sprayed on so much of our food and in our swill.

Right? So even if we're going, even if we're going organic or things like that, we might still be getting a little bit of that and being able to clear that out of our body and not have reactive oxygenation species building up and not have toxicities.

Building up is really important. So that's another big one that I see. Yeah.

Mold, Oxidative Stress, and Toxic Load

And like I said, other infections, other toxins, dental fillings or mercury removal done improperly by root canals, intestinal permeability or gastrointestinal problems.

Because so much of our health is linked to our gut, if you have a chronic gastrointestinal infection, it's going to be really hard to properly detox and have regular, healthy bowel movements that are removing toxins.

And so that's the biggest the big the big hitter. So really anything in excess in our world can can lead to oxidative stress. That is that is not beneficial anymore.

And that's again that goes back to straws. All right. How many straws get somebody taken. So by the time you get sick enough to develop these symptoms.

And I know I talk to people regularly as well. Some of them are very young in their 20s and 30s, where they get this trio that you're describing and others are in their 40s and 50s when they get the trio.

So it depends on the total burden. Right, of what you're carrying. What percentage of us aren't toxic? Probably zero. Right. Unless you're living on the mountains and Tibet and.

Yeah. And you might not have as much of a burden because it's in the air anyway. Right. Yep. Throughout the planet. So, so your toxic trio is Epstein-Barr virus blood disease and mold.

They're like probably the most common activators and they're the most common culprits. Interestingly enough, I don't know if you're aware of this. I'm sure you are.

Is that what I do? Western blot testing. And there are a lot of people who are lab literate doctors who, like, go down that like full bore down that road of, Lyme disease when they have 2 or 3 blot, western blot antigens, positive, but they're mildly positive, so they don't meet the CDC criteria.

And I, we can distrust the CDC anyway. But, you know, say they say they don't meet the CDC criteria, but they have mild, mild activation of some Western blot antigen, but not enough.

But I found that the western blot, actually, if you read the tests for the labs, they said, EBV cross reacts. All right. Are you aware of that. Yeah. Can you tell tell us more about that?

Well, first off, I think it's interesting how we approach, the germ or or bugs or disease in general, because it's like, what is it really? Are we ever not going to have any viruses or bacteria in our body?

No, we're not supposed to. And so what level, does it take for spirit to be positive? And with Lyme disease, there's

kind of two trains of thought. And there's also two types of Lyme disease, essentially you have your acute where somebody was clearly bit by a tick.

There's a bullseye rash is positive. We're going to treat it acutely. Whatever they know they were bit by a tick. And then we have this chronic picture where well I don't ever remember being bit by a tick.

And I was, well, my whole life. And now all of a sudden I have symptoms. How did I get this in my body? How do I get cute now? Maybe they were bit by a tick and didn't know it, or maybe it was passed to them from when they were born.

We don't really know. And that's kind of controversial about what it was supposedly sexually. Yes. So is it possible that some of us have Lyme disease or a spare key in our body, but we're still healthy?

Yes it is. And then when we have a trigger, it's there. And all of a sudden we don't feel well. Right. And so when we see this cross reactivation and things like that, I think it can be a sign that maybe we, we had this for a long time and we didn't know it and, and whatnot.

You know, there's so much that we don't know about immunology and how the immune system is functioning. I think a lot of times what happens commonly is that people see their positive for Epstein-Barr virus and they just focus on that, and then they don't test for line.

And when they see that that Lyme test is negative, they say, okay, it's not Lyme, but there could still be Lyme affecting them because Purohit don't hang out in the blood.

They hang out in tissues and it's really difficult to test that. So I think that's where it gets tricky. I don't, I do think that EBV and Lyme are different things.

You know, once I was on Spare Key, and there can be when we have both of them going on where the immune system is, is showing up different. But, the tricky part is just the Western blood testing blood, and it's difficult to see Sparky in the blood is what the real, difficulty is.

Unless you're like, you see the Sparky, you don't know because you're just dealing with an immune reaction. There is there's biological mimicry. So somehow maybe it's possible that something of the sparking antigen is a mimic to with the antigens in EBV.

And so that test is just testing for those proteins. And there may be again mimicry. So it's not cross the test is cross-reactive. That doesn't mean that that the person is disease cross-reactive.

Absolutely. We're talking about a test. We're not talking about disease. Right. Although obviously when you're vulnerable, when you have one disease, it's easier to get to catch another one, right?

Right. So just to tell us a little bit about the history of EBV, I mean, how it progresses across the different stages. Yeah. So it's from human herpes virus for and we've talked about how it's estimated that greater than 95% of us have been infected with it.

But it's a DNA plasmid alternating between a latent and a light cycle. I've talked about that latent. The inactive light is the active. And it was the first human tumor virus discovered about 50 years ago.

So we've always had our eye on it for cancer. But at that time it was really mainly just lymphoma. And then from there it was, you know, okay, let's say you get infected with Epstein-Barr virus, you have different antibodies that are going to respond in that.

Your first one is the IDM, and that's the first one that shows positive. And then after that your IgG comes in. That's several weeks later. With reactivation we see that early antigen IgG will show positive again, even if you've been infected before.

And that's usually between 3 to 6 months. The infection or reactivation or or both. Well I guess they could be both. I, I tend to term it as reactivation, but I guess it could.

I mean, it could be like reinfection if you're exposed to somebody that had a lot of titers or things like that. But usually it's termed reactivation with the, with the early antigen.

And so if you catch that 3 to 6 month window where the early antigen is positive, you know, you know that you're dealing with it. Again, the tricky part is that IgG can stay positive sometimes, which doesn't doesn't align with what we know in our biochemistry and immunology textbooks.

And for some people it says chronic for a really long time. That type of thing is a little bit more rare. There's also EBV can also infect different cell cells.

So it can infect B cells and K cells and T cells different immune cells. The most common is B cells. And that's what we typically see. And what I typically see with what we're dealing with chronic fatigue and people that are having it reactivating things.

There's different types that can be more rare. And they're mainly not found in the United States, where they're very aggressive forms where cancer usually develops early on.

But what I'm talking to is usually the reactive version and affecting B cells. So then after that six months, the early antigen might not show positive anymore.

The IDM might not show positive anymore, but you might have elevated IgG response. And what conventional markers will say is, oh, well, everybody has that because everybody's had it.

But what I see in people that have really chronic symptoms is that that level is 100 times the regular limit, or even if it's ten times and they're symptomatic, then that tells me that they're probably still dealing with a high viral load and that it's impacting their health.

And we need to figure out what is what is driving it, what is causing it, and why that's happening. Now. We don't we don't have a viral load test for EBV, do we?

We just have the ECGs. And then there's also, there's also stool tests that will look for signs of it, you know, more related to gastrointestinal tract.

And then there's the PCR test. But that's just kind of it's there or it's not and doesn't give you what you're talking about with with a viral load. Yeah.

Because for HIV we can measure viral loads for, hep C we measure viral load. But why don't we measuring viral loads for EBV? It's a great question. Nobody cares.

They should we should now. Right. We should really be looking at that because that's been a frustration on my part as well. So let me ask early antigenic we're talking about early antigen as a reactivation as a sign of reactivation.

Do you have early antigen with initial infections to. Well, so most of my patients have had it before because most of my patients are in their adult age.

So I haven't seen EBV panels from many as many children are first presenting. And the other problem is I don't really know, because usually in that population, doctors don't even run the early antigen.

They just run the exam. So really running the early antigen is something that mainly functional doctors do. And and neutropenic doctors conventionally.

A lot of times when I suggest that, you know, they ask me why I suggested or, what it's doing. So I don't really know

because they haven't seen panels.

Well, there are studies that have actually looked at that question. Yeah. Okay. So any of the lives basically after you get your infection, right, it seems to work live and under other lymphocyte.

That's where its primary source of life is replication. So it keeps multiplying keeps repeating itself. Right. And lives in the in the lymphocyte. There's a live anywhere else.

Yeah I mean there's signs of it in liver cells.

Testing, Antibodies, and Lyme Cross-Reactivity

There's signs of it in, in other cells. But it can it's known for infecting immune cells. So they can also affect the NK cells and T cells like I said.

But that's a lot more rare. I didn't realize that, in fact, that NK cells as well. So what our NK cells, those are your natural killer cells. And again, that's not very common.

And, you know, it's kind of thought of as a different strain of Epstein-Barr virus that's more aggressive and typically not found in the United States.

But those are the actual immune cells that usually respond to infections and especially viral infections. So NK cells have have basically two functions, right.

One is against viruses and the other one is your immune just your overall immune function or immune function and responding to foreign pathogens cancer.

I use it all the time in cancer cells. I mean some resent k levels are very low and they're more vulnerable to to cancer. Definitely. Well and of course, who knows then whether it's viral, that's the viral hypothesis of cancer.

Yeah. We that cycles back to germ or train or what's happening where Fascinating. What other, cancers can EBV be associated with lymphoma? Well, that's the thing is, now now that we're testing for EBV more, we're finding it in, in like, you know, it's kind of everything.

It's EBV causes. Or did the disease cause it because we're finding it in GI cancers. And I've seen, you know, just I mean there can you can find research on just about any cancer where oh we tested in this person had EBV titers.

So does that mean that it caused the cancer. And that's where I think if we go down that route and say, oh, EBV is responsible for all of this, then we're really going to miss out on helping people prevent chronic illness.

And we really need to look at what it was that caused the reactivation of Epstein-Barr virus, not so much Epstein-Barr virus itself. And I think when we look at that, that that's when we're more successful with patients and healing.

And I think from a research perspective, how can you get a control group if 95% of the population as positive? Yeah, that also makes it right. You can't have a negative.

You can't have a negative EBV group unless you use, cutoff for titers. Yeah. Or I mean, the other thing is bringing in the symptoms of a patient into the trial, which is really hard in a control group because people symptoms.

How do you how do you standardize that? You know, that that just makes it so much more complex. All right. So, what else do we have to say about this?

All right. What causes EBV to reactivate? So I mentioned that marker, the VLF one. When oxidative stress happens, that is a protein that turns on and it can reactivate.

That's I mean, there's other there's other proteins involved too. That's one of the big ones. So that oxidative stress is the thing that is in common with everything.

So then again, we go back to our long list of things that can cause oxidative stress. And then it can feel very overwhelming because, well, anything could reactivate Epstein-Barr virus.

And, and I think that's what also makes research and things like that difficult. But really anything that is causing an increase in reactive oxygen species and a host person patient that does not have the antioxidant status to keep up with that or has other things in their health picture that they didn't, that they didn't know can be susceptible to that reactivation.

Tough. How do you measure oxidative stress? Well, there are some functional labs like 808 DG I think I said that marker. Right. And you can do that on an organic acid test and see, you know, what, what the oxidative stress levels are like.

You can look at somebody's glutathione levels. You can one marker that I think is really helpful is reverse T3. Because when the body starts to slow, not create T3, a reverse T3 is a thyroid marker.

So usually we check T3 to see how your thyroid is doing. If the body is really stressed, it will say, hey, you need to take care of yourself. We're going to convert to reverse T3 instead of regular T3.

You need to save your energy, kind of like you need to save your money. So when that is elevated, a lot of times I take that as a sign of oxidative stress.

And so also we can see it just in symptoms. Right? If somebody is having a hard time recovering after working out and it's taking them, you know, they might feel like they have the flu after they work out or they're sore for weeks instead of a couple days.

So it kind of depends on the person, but those are some of the ways I look for oxidative stress. What was the first one that you mentioned? Can you spell out, please h o h b g I think that's the right marker.

Eight. The number eight. OHG3 d as in dog and then g as in go. And it is the deoxy one a sign marker. And we can measure that in urine. And usually that's a functional that's a functional lab that we're doing okay.

So let's talk about let's talk some more about activation. And the E. The early antigen. Right. So there are how many different tests are there for EBV.

So if we do the full panel, which is what I suggest, if somebody is really because even if we just do, when you do the full panel, you can at least try and get a timeline or idea of what's been going on.

And when you put that with the patient's history and their symptoms, that can be helpful. So our viral capsid antigen IgG, VCA, IgG DM, the early antigen and then the viral capsid antigen IgG and then the nuclear antigen IgG.

And there is one other, when that sometimes people run that. But those are the four that I find the most, the most beneficial. Yeah. Four five. Yeah. Those are the ones that I find the most helpful for diving in.

If you have thresholds. It's usually it's usually either just a really mild elevation. And it does look like, you know, this was a past infection and it's not really bothering them or it's it's 20 to 100 times the upper limit.

You know, it's usually one or the other. I don't see a lot of oh, it's kind of elevated like it's, you know, 50 points above. It's usually either very mild or very, very elevated.

In my experience, that's the EAA specifically. That's the IgG, the EPA. If that's positive then then that's a sign that it's the EBV is currently reactivating.

And I don't typically see that be extremely high. It's usually it's usually mildly positive. The IG GS of viral capsid antigen and nuclear antigen IDs are the ones that are usually either just slightly or very, very high.

And the VCA and the IBA. Yeah. The problem that I have with the labs is sometimes they give you a greater than 500 or something like that. You don't know where, you don't know where it is looking to see whether something is working to bring those antigen levels down.

If you have high energy levels, do they come down even with treatment? So it's interesting sometimes with early treatment, I will actually see them go up.

Because I think the immune system is responding better and, and sometimes people are feeling a lot better. I usually don't test them until several months after we have finished, treatment.

And the patient is feeling better. Sometimes they do come down. Sometimes it takes years for them to come down. And that's something that we just don't understand really well about the immunology of this.

And so when we are treating this, it becomes a symptom thing where, oh, you had two out of ten energy and didn't work, and now you are exercising and working and leading on a daily life.

Treating EBV and Supportive Therapies

Titers might still be high and we don't have a good understanding of that. Unfortunately. Yeah. I remember seeing a patient once who, I've monitored over a period of time and, we treated her, got her a bunch of supplements, you know, antioxidants, etc.

and gradually she got better. That took about three months or so to get better. And then she came back about six months later, and she's feeling worse again, improving her titers.

And bang, they went up. So when they went down, they went down maybe by 5 or 10%. When they went up, they went up by 20 or 30%. So I you, I tended to see it go up more than I saw it go down.

And again when it's over, when it's over the limit, the measurement limit of the lab, then you can't tell what it's doing because you don't know how high it is.

But, there are labs that give you more precision with, with getting these titers. You are aware of labs that don't have that greater than sign. Now, I think lab core goes up to 600, most of them cut off at 600.

Right. I've seen that as well, I think, quest did did measure better above those upper limits, but they still probably still have an upper limit. Yeah. Never reached it.

Yeah. All right. So, that's EBV can cause all kinds of have it can be a source of all kinds of other problems. So what do you do? How do you treat EBV?

So when I treat EBV, the first thing I do is look for what could have set the stage for reactivation. Because if we don't change that, then no matter what antiviral we take, as soon as we take it away, it can reactivate and start that cycle again.

So figuring that out is really important. I do use antivirals. Depending on patient needs, we might use natural antivirals. There's a lot of different herbs, like let Mesa.

One popular natural one is for seitan. Sometimes they don't see that work as well with really chronic cases. And but we do have lots of natural therapies available.

Some people do I. V. vitamin C I have seen ozone be used again. Ozone has an interesting relationship with oxidative stress. So we really have to be supporting supporting pathways.

If that's what we're using. We might use Valacyclovir. That is a drug that is typically for herpes. But EBS from the herpes family. So for some people that can really help knock that viral load down.

But while we're doing any of that, we have to be changing the body's biochemistry and making sure that we're not having increased levels of reactive oxygen species and we have to be combating the reactive oxygen species of the body is going to be producing while it's responding to EBV, or else we're just going to be stuck in that vicious cycle of it being active.

What's the longest you've ever used Valacyclovir for? I don't use it as much. Mainly because a lot of people that seek me really are looking for natural therapies.

But I have seen doctors that I have learned from and mentors that I really respect to use it off and on for months. And you know, they might take a break to do other therapies and then need to use it again.

Usually EBV is something that takes time to really get under control. Do you know of any, antivirals like not non-pharmaceutical, but natural antivirals that are actually, virus biocidal?

By antivirus title or that are biocidal. So like, we know that with HIV, I would have to see there are antivirals that are available prescription medications now that knock down the load.

I mean, the zero viral loads, we can measure viral load. So we don't know how to do that. But right, right. Yeah. I mean it's kind of like a lot of it.

A lot of the natural therapies are based on other doctor's clinical experience with things that they have tried and what they have seen clinically. There are some that have.

And then we kind of pick ones that are just seem to be antiviral in general and specific to that family of viruses. So like low motion has been used very commonly.

Olive leaf has been used very commonly. And I like to pick herbs like Andrew Gravis that does have some of that property. But then it also has other properties and it has it affects against oxidative stress.

So I like to pick things that have multiple actions with EBV where we're getting things under control. So no, we don't have a clinical trial like you said that says, oh well it dropped it this much.

There is a really good there. There is a study, that did show a decrease in antibody titers with IB vitamins. These with I've seen IV vitamin C. Yes. Good. Good.

I when I was getting some training in New York, and acupuncture from, a pretty famous, acupuncturist, he does a lot of, resonance, measurements, muscle testing.

And he basically has discovered over time that what happens is that when you have an infection, the, white cells, macrophages, white cells, go to the fight.

That's their job. They see where inflammation is, and then they run to the inflammation to try to help the body to deal with the inflammation. Unfortunately, what happens at the inflammation is that, they they die, they undergo lysis.

And if you got these scavengers that have been scavenging the body looking for toxins and viruses and bacteria, fungi, parasites or pieces of all, of all of these things, when they go to the fight, they actually die, they lyse or they break apart.

What do they do? They release all that yuck, that they release all that stuff. And that's how you get chronic inflammation. Often it's because now you compound or whatever you started with, now your company with other secondary kinds of problems as well.

So your approach then using multiple, multiple herbs and supplements and antioxidants etc. becomes really critical because you can't you can't sort of you go after one thing.

And I think modern medicine tends to do that test to look at it from a single factor perspective, where this is all multifactorial. Exactly. Okay. So do you have, now let's talk a little bit about Pmfs.

So what do you understand about Pmfs and how they might help in infection? So I think of Pmfs as helping the body go back to its, its homeostasis and clean up.

So I think of it as helping change the environment where it helps clean up oxidative stress, and it helps cells go back to what we would call a healthy or normal processing, because mitochondria and cells can get stuck in a dangerous state where even after we've been dealing with this infection, if that's still there and there's still not, working optimally, and we have that oxidative stress there, then again, it's going to reactivate.

So I think of it as calming all of that down, cleaning things up, almost kind of like the same thing that we do. You know, I tell patients to go barefoot and walk outside to ground and reset their body the way that it's supposed to go and clear out oxidative stress.

And I think pmfs help with that. And getting the body back to its optimal natural state. You're, you're absolutely correct. I think one of the most important things that people have to do is to help to repair the damage.

So if you can improve circulation to the tissue, which unfortunately increases oxidative stress as well. Right. But then you're also bringing in more inflammatory cells to help with the fight.

But then you need to increase DNA. You need to increase, stem cells. You need to do all sorts of things to help to repair and make the tissue generally healthier for the tissues healthier it can put on to put up a better fight, basically.

Right. There is a caveat, and a lot of people are doing the right therapies. I don't know, not what you're thinking is on right. But frequencies frequency based pmfs can be a problem.

But well they can be too taxing to the body and actually create more oxidative stress. And it's, it's kind of like creating a very acute burden on the body.

And if the body isn't ready for that then people can get a lot worse. That's been what I've seen. And I think you're right. I think there's another aspect to it too, though, and that is that basically these frequency sometimes can activate latent viruses.

Okay. And we've seen this basically in the face.

PMF Therapy and Closing Advice

Some people have shingles that could be reactivated by a PMF, a frequency based PMF. So probably the the best PMF system is a single frequency, preferably a single pulse type PMF.

So just a pulse. And it's not really frequency based. It's not providing the body with a lot of frequencies. That noise, that, overload of frequencies, as you said, begins to overload the system.

And when you have, nerves, especially when you have a lot of pain with the symptoms, then you have a lot of nerves that are inflamed. And when you have nerves that are inflamed and they're irritable, what happens when you throw a lot of noise at them?

You get more irritable, you're more irritable, and you're not helping them. Actually, you're making them worse. So typical power systems tend to do a better job than these multiple, frequency systems.

So that's something, etc.. And then always with PMS you need to go low and slow. I think what you said about the oxygenation and recirculation is something really important to highlight, because there are people that have had EBV and been so fatigued and not been exercising that they the lack of circulation and lack of oxygenation is a big problem.

Some of them have even had, you know, congestive heart problems because they're not moving. They're not getting that blood flow, that lymph isn't moving.

And so especially when people are trying to heal and are trying to rebuild that, and they're not able to exercise daily and regularly because of how sick they've been.

I think that like you're saying, it done right and gently that that can be very beneficial for circulation and muscle function and overall getting immune cells and blood circulating again.

Yeah, you're obviously correct. And I think when you're that depleted, when you're that sick, when you're that sort of, down under, when your immune system is that exhausted, then you have to go low and slow it.

Don't drop in and do a very high intensity magnetic field. That jerk your muscles and all that. You can just gently see how your body's responding and and gradually increase the exposure, time and intensity as you begin to recover.

Absolutely. So do you have any parting comments, thoughts, advice? I think the biggest if there's one thing that you take away from this talk, is that, looking at the body in multi, multi different functions and what caused and what set the ground for EBV to reactivate and to focus on restoring the body and nourishing it.

And using therapy is like considering PM and others that are going to rebuild it and not just trying to kill the virus, because if you just try and kill that virus, but you haven't changed those things, it's it's going to just come right back.

It's not going to happen. You won't recover. You know, I'm sicker, I'm more depleted. Unfortunately. Yes, exactly. Well, Doctor Holland, Casey, thank you so much for being with us and sharing your wisdom and experience.

And I think, EBV is an extraordinarily common problem. I think we're beginning to recognize it more and more and more. So it's important to keep your eye your attention on that topic.

Do you have any books or any places that people could go to get more information? I have a webinar that I do on IB that you you can get for free. You can go to Doctor Starcom and sign up for it.

So let's spell that please. Doctor Dr. Casey k s e y Holland hoa land.com.com. Perfect. Wonderful. Thank you again. Enjoy the rest of your day and the rest of your evening.

Thank you for having me. You're very welcome.