Clinical strategies for chronic infections

Dr. Armin Schwarzbach

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Kirsty Cullen - [00:00:15]

Welcome to the Fatigue Super Conference, I'm Kirsty Cullen, CEO at the Optimum Health Clinic, and today I'm joined by Dr. Armin Schwarzbach.

Dr. Schwarzbach gained his PhD in 1992. He is a member of the following, the Swiss Association for Tick-Borne Disease, the German Association of Clinical Chemistry and Laboratory Medicine, and the German Society for Medical Laboratory Specialists.

He's also an advisory board member of the Academy of Nutritional Medicine in London and a board member of the German Borreliosis Society, and member and former board member of the International Lyme and Associated Diseases Society.

He served as an expert on advisory committees worldwide, with a view to Lyme disease, and he is founder and CEO of ArminLabs who specialize in diagnostic tests for patients with tick-borne diseases and other chronic infections.

So I am delighted that he joins us today to speak on his specialist subject. Armin, welcome.

Dr. Armin Schwarzbach

Thank you Kirsty. Thank you for your nice introduction today.

Kirsty Cullen

So, Lyme disease and chronic infections they're renowned for being a complex topic. And we're delighted to welcome you today, to introduce and simplify this topic a little bit for those who are still learning about it.

Let's start by asking the question, the obvious question, what is the link between chronic infections and CFS or other fatigue related syndromes?

Dr. Armin Schwarzbach

This is an interesting question. When you talk with patients, I came from Lyme disease 20 years ago now, and with my first patient, I didn't know about Lyme disease, that it can get chronic. I didn't know about. That other infections could get chronic, but was clearly in my amazement when I talked with such patients. I'm also a GP and a medical doctor. So I also studied medicine before my qualification for laboratory medicine.

And what I can tell you, in the field of Lyme disease, I would say 99 percent of the patients that all have ME or Chronic Fatigue. But this is not a specific symptom just for Lyme disease. What I found, that nearly all chronic infections, viruses, parasites, yeast, mold, tick-borne diseases, Bartonella, they all have Chronic Fatigue, they are fatigued after the tick bite. So you need to ask that question.

And this Chronic Fatigue Syndrome is based on really chronic multiple infections. You cannot say I have Chronic Fatigue, now I have Lyme disease because I had a tick bite, this is absolutely incorrect. Maybe it was some swollen lymph node, or kissing disease and after that you got the Chronic Fatigue, or the ME after that. I think it's better to name it ME in England. So I stay on the word ME now, on the expression.

But what's so interesting, that the Chronic Fatigue, we'll come to later the mitochondrial pathways, I think that this is really important, it's a leading symptom for Lyme disease, for tick-borne disease where I came from. And so I would really say, this is a common part of the ME jigsaw puzzle, to bring the puzzle together.

Kirsty Cullen - [00:03:38]

So when we're talking about tick-borne diseases, what are the infections that we're talking about specifically here?

Dr. Armin Schwarzbach

Now, that's really complicated. The ticks are dirty needles, we name them, they are full of different pathogens. So bacteria, and what we found, viruses and parasites also. Where we all came from, Lyme disease, Lyme disease, Lyme disease, so we found out now that we have a lot of so-called co-infections. But I want to really eliminate this word, because co-infection, it sounds like a little domestic, and Lyme is everything. That's absolutely not correct.

We have ticks. Ticks are full of, let me name co-infections, for co-infections, everybody names it this way. Lyme disease, the main infection maybe, Ehrlichia, Anaplasma, the musculoskeletal, the second infection or the main co-infection statistically, Rickettsia, Babesia, Bartonella. These are the four ones, but we have found out now that we also have chlamydia pneumoniae, chlamydia trachomatis in the ticks.

We have found out also that coxsackievirus is in the ticks. We have also found that Borrelia miyamotoi is in the ticks. We have found the Ehrlichia in the ticks.

So the ticks are full of different pathogens, they're dirty needles. The question always is, which infection is the dominant infection? And not all ticks have every one of these pathogens in the tick. There is maybe just Bartonella in the ticks, but what we see more and more, Miyamotoi now, also in Germany, we see more and more Bartonella in the ticks, but it need not to be Borrelia burgdorferi, the pathogen for Lyme disease in the ticks. It's a really interesting observation.

The question is also, if a higher prevalence of some of these infections are maybe in certain parts of the world? This is also a very interesting question. I can say yes, when I travel to Australia, or to Cape Town, South Africa two years ago, they know a lot about Rickettsioses from the tick bites in Australia. This is completely accepted, also in a condition not so much the chronic condition they accept that, but they accept Rickettsia in the ticks, and they diagnose, they treat the people or try to treat the people. The patients on the other side, they ignore in some countries completely other pathogens in the ticks and they don't check the ticks. So I say, please keep the tick and check the tick, this is prevention. You need to know what is in this dirty needle.

And if you have the information, then you can also diagnose better. You can also treat better. And some do prophylactic treatment also if the tick is contaminated with Borrelia or Rickettsia or Bartonella. But this shows clearly that the ticks are like endemic hotspots. You could say, OK, some say it's epidemic. It's a pre step to now the pandemic. But, I would say it's more endemic on the way maybe to epidemic, because we have more and more ticks, climate change, outdoor behavior, more exposure of the people, more and more tick bites. People are doing more leisure activities outside.

So what I can tell you, there are different factors, especially the climate change plays very important role that we have more ticks. We have now exotic ticks in Germany, Hyalomma ticks, they bring also some really dangerous viruses to us. So the birds play a role, in Canada as an example, they fly over

distances with the ticks on the birds. We have also imported reptiles in Japan. They produce reptiles, with ticks on them, into the zoo. So the imported Ehrlichia, Anaplasma into Japan, into Japanese zoo and they spread it around by the birds.

So there's really geographical influence. The ticks cannot fly over distances, this is a passive transport mechanism on the birds. Also the foxes and the deer is coming closer to the cities. It's also very interesting. We have in Stuttgart and Munich more and more deer you see outside, hedgehogs, you see more and more coming into our cities. So they don't fear us any longer. And they bring these these ticks into our gardens. And it could be that in your garden, you have a hotspot, endemic area, but not in the neighbor's garden.

So I say sometimes, send me some ticks, you can test 10 ticks, one PCR test, and then we know if your, or parts of your garden are really free of any pathogens in the ticks, and then you are happy.

And the neighbor's garden is full. So this is really a problem. This geographical distribution of the different pathogens in the ticks. In America, they have the Rocky Mountain spotted fever. In Germany, Eastern Europe, we have the tick-borne encephalitis where we can do vaccination.

So you need a lot of knowledge and we need specialists in the countries who know better about the endemic areas, endemic hotspots.

I think, yes, we can expect more and more infections, bacteria, specific forms of Borreliosis. Also really important in Europe, we have more the Neuroborreliose, the Garinii. In America, they started the story from Polly Murray in the beginning of the 80s and really Burgdorfer. They started with the story of swollen joints, juvenile arthritis, that was the history coming up.

But now they've found also garinii and sometimes afzelii in the ticks in America. So because people are traveling with the dogs or with the cats, and they bring it from Europe to America, and then the dogs have some ticks on them, because there's no border control for the animals, for the ticks. So you send a kangaroo outside from Australia, OK, the kangaroo will have problems to come inside back to Australia because they check it, but they don't check the ticks. You know, they don't check which parasites or which insects are on this kangaroo.

Kirsty Cullen - [00:10:14]

And is it important to say, at this point Armin, that we're not just thinking about ticks, we're also thinking about other insects that can bite as well?

Dr. Armin Schwarzbach

Yes, this is also interesting chapter. When I had my first patients, I thought just the ticks are the problems, but we know all better now. Mosquitoes can transmit Borrelia Lyme disease, sandflies can also transmit some of the pathogens. We have the horseflies are very well known, but I don't want to panic the attendees because we know that not all are contaminated, you know.

But interestingly, we also should check the insects and maybe the horseflies and mosquitoes. We should check them. We should collect them and check them for pathogens. For Borrelia, Bartonella, Rickettsia, whatever is in there. But nobody is doing that.

Kirsty Cullen

And of course, then the other piece of this is it's important what the immune system is looking like and how it's positioned and how we deal with infections in the body. Some people will be much more susceptible to an infected bite than others would be.

Dr. Armin Schwarzbach

Absolutely. We have always, in many of us there's immune dysfunction without knowing it. You see it

also in the SARS-cov epidemic now. In the pandemic, where we have this problem that we have three I's, this is the second I, the immune dysfunction without knowing it. Also, if you're getting older, 60+, your immune system is decreasing. You are getting down so you should do prophylaxis. You should maybe take vitamin C high dose, whatever you're doing, vitamin D.

OK, the people are now getting more conscious about that by Corona. They know, OK, I need to do something, healthy nutrition as an example, vegetables or some fruits, and not just steak or hamburgers. Also come to good nutrition because the natural immunity is in the gut. This for me, it's proven. And many have dysbiosis, leaky gut syndrome, histamine intolerances. So we need also to have a really good nutrition, all of us, and then we have a better natural immune system.

Kirsty Cullen - [00:12:28]

Perfect. So while we're talking about new terminology, can you just take a moment to explain the difference in what we mean by intracellular infections and extracellular infections? And why Borrelia differs slightly in this regard?

Dr. Armin Schwarzbach

Yes, this is an interesting question. When I started with it, it was clear to me that all of these co-infections, Bartonella, Rickettsia, Ehrlichia, Anaplasma, Babesia, it's a parasite. They are all intercellular. There's no extracellular form. Also chlamydia, mycoplasma, Yersinia, Campylobacter, all intracellular, all viruses intracellular all parasites intracellular.

And OK, the worms can be extracellular but the eggs are intracellular or also extracellular. But borrelia burgdorferi is one of these in the group, which of these so-called tick-borne pathogens, which is also extracellular. If you're happy, if you're lucky, it's extracellular in the whole spirochete form.

And we have also intracellular pathogen, intracellular forms, Lida Mattman in the 80s named it L-forms or cyst or round bodies. The correct explanation would be pleomorphic forms, intracellular, and interestingly, it's in the macrophages, borrelia can survive that type of macrophages, by the snips on the surface it can survive. So the macrophages cannot destroy borrelia burgdorferi intracellular.

Why? Because borrelia burgdorferi is doing, the so-called pleomorphic forms, named better round bodies, it looks like round bodies with a double membrane. And this is protection mechanism. It's not a typical spirochete.

L. McDonnell also did some impressive pictures on that, also on Alzheimer's patients and multiple sclerosis patients, where they found also these round bodies, intracellular forms. And we did some studies with Professor Gilbert, around 8, 9 years ago, we found really in cultures that borrelia is going intracellular for protection, doing this round body forms, with a double membrane. And if you do good milieu, you say, OK, I'm friend of you, I don't attack you. It's coming out into the spirochete form again.

And interestingly, the biofilms. Biofilms, biofilms, biofilms. I can pray that now. All of these pathogens are doing biofilms. Also chlamydia, pneumonia, Borrelia. What is the biofilm? Some people know now what is a biofilm. Biofilm is a protection mechanism, is the slime. If you have a cold, you can spit out, you have chlamydia infection or mycoplasma, you spit out some slime.

If you're a smoker as an example, or sinusitis, also this pathogens. A slime means a protection, so difficult for antibiotics to reach this pathogen.

And also, on the other side, you have the quorum sensing, its name. From sensing, means it's a chatting room. So, the pathogen, borrelia burgdorferi, is communicating with each other in this biofilms. What does that mean? You need to treat biofilms. You need to treat the cyst, or the L-forms, or the intercellular forms. If you don't do that, you will not be successful with the therapy.

Kirsty Cullen - [00:15:48]

So essentially what we're saying, is with something that has the ability to be inside the cell, outside of the cell, in different forms, and protect itself in biofilm, we have to be quite smart about how we approach it and how we work to eradicate it from the system.

Dr. Armin Schwarzbach

Exactly. That's the point. I think a biofilm breaker, or so-called biofilm breaker, should be used in all of this, bacterial and I think also in virus infections, because of this slime in the gut, you can see that if you have a klebsiella or enterobacter infection, you produce a lot of slime from your gut, so you need to treat the biofilms. Who knows? The traditional school medicine is not doing that.

Kirsty Cullen

So if we come on to the subject of symptom clusters, I find this incredibly useful clinically, tick-borne diseases have different profiles of symptoms. Can you explain a little bit more about those symptom clusters and how they can be useful in helping us to decide what we might choose to test for?

Dr. Armin Schwarzbach

Yeah, we started from the ME description. You said Chronic Fatigue is, or we both concluded already, that it's not just a symptom of Lyme disease. Or just a virus infection, or sars-cov-2, or post-covid long term, this situation. Not all symptoms are Lyme symptoms, you know, not all symptoms are virus symptoms. Not all symptoms are parasite symptoms.

And every pathogen, every bacteria, every virus has a different symptom profile. I name it a symptom profile. So if you have here an example, you can get some diarrhea, massive diarrhea, and you have persistent gut issues. You have maybe reactive arthritis, that means you have joint problems, muscle problems, cognitive dysfunction, and you have ME you would say. So the ME is not a specific condition. You could not postulate this is not Bartonella infection.

And therefore, I was thinking about, years ago, how you can put this profiles of symptoms onto a checklist. And thought that was my invention, of the so-called, I named it co-infection checklist, which is, I don't think so correct. I would name it multiple chronic infection checklist or opportunistic infection checklist.

This is a questionnaire. Everybody can do that free of any cost. It costs you nothing. Also we do it now in sars-cov-2 patients, if they have long term, we want to know if some opportunistic infection. And this approach brings you individual ranking of different possible pathogens. I name them pathogen, maybe Borrelia, maybe Bartonella, maybe Rickettsia, maybe Chlamydia, maybe Candida, yeast, mold, whatever, you can think about that.

And this list is a really helpful tool, I do it every day in my daily work and it hits really the head of the nails, and you really find out, is it this direction clinically? This is clinical. I know it cannot substitute the whole clinical anamnesis, that's clear. But, as you can imagine, there are many therapists, they don't have the time to go through all of these questions. So we need standardized questionnaire for individual profiling the pathogens in ranking of this co-infections or multiple chronic infection checklist. And then we can do the tests. And we spare money if we just do the tests according to ranking.

So medicine is thinking this way, the more symptoms you have for an illness, the higher is the probability that you suffer for this illness, and the higher is the chance that you'll find a really positive result for that patient. I'm not a fan of screening, so screening costs a lot of money. And this is useless money. We name it in laboratory medicine, predictive value, what we are doing. So we spare money and we have really a great test selection by that.

Kirsty Cullen - [00:19:44]

And it is such a clinically practical and useful tool, especially when we have patients/clients who are very mindful of their budget. They don't want to, sort of, overspend. So it is really important to be able to hone in on those tests that are most important. So incredibly useful.

If we go back to what ticks or insects might house and what they might transmit. That aside, it's so common to find a collection of different viruses or bacteria when we test, rather than just finding a specific bacteria or one particular virus.

Can you explain why it's so common to find a number or a collection of different viruses and bacteria together?

Dr. Armin Schwarzbach

Yeah, this is the next question, when I started with Lyme disease, Judith Miklossy from Canada came to me. She collaborated with Alan MacDonald in America on Lyme disease, and she said to me, I mean, multiple sclerosis, it need not to be Borrelia or Lyme disease. It could be chlamydia pneumoniae. And I said, what? Never heard about that.

Or mycoplasma. And then I said, yes, OK, let's do a test. And then we started to check for ELISpot for it, the cellular immune responses, and the IgA antibodies. And I was so surprised. So 84 percent of my patients, I checked 50 patients with chronic Lyme disease, 84 percent had at the same time, chlamydia pneumoniae infections. So interesting. And then I said, oh, OK, whoops, something is wrong in my clinic picture.

Also for therapists, it's so important to know what to treat, you know. Do you want to treat now chlamydia? Do you want to treat now mycoplasma? What do you want to treat? Do you want to treat Borrelia.

OK, most of the antibiotics and therapies are broad ranged, the antibiotics are not specific for one bacteria, they are unspecific for this pathogen. So you kill, you destroy something, but you don't know what you destroy. But I want to know what I want to destroy.

And what I found in the second step, after that story, I started with the viruses. I said, OK. Dietrich Klinghardt talked about that. He said, OK, we have the retroviruses. And I said, OK, maybe it's not retroviruses. Maybe it's more the direction of herpes virus group. Herpes virus group is a huge group. We know that. It's HHV-1 to HHV-8 we have now, we can diagnose now.

And, what I also am focused on the enterovirus. That was my next group. And maybe viruses are reactivated. I cannot tell you that. It's opportunistic, Klinghardt named it. Or, it's really own standing thing. And maybe a patient had never Lyme disease, it was from the beginning a virus infection. It was misdiagnosed because the clinician thought that you had a tick bite, you have Lyme disease but... Because bullseye rash is just 30 percent or 40 percent have a bullseye rash. So it's really difficult.

Just 18 percent, remember are tick bite. It's so difficult to say this now, Lyme disease when you don't have a typical history. Some patients have typical histories, ok, you can follow up that. But I've seen many have traveled, travel tourism and have found so many coxsackieviruses now, double infection. I'm really shocked about that somehow myself.

And Lyme disease and other tick-borne diseases can be also co-infections of this virus infections. Just to discuss that, you know. So what is the main infection, what is the secondary, what is the third infection? We need a ranking. We need some aim, we need to know what to treat now. Do you want to treat a virus, do you want to treat bacteria, a parasite, what do you want to treat? This is so important.

And I think it's more the opportunistic situations, or a lot of patients started with Lyme disease. They got a good treatment with antibiotics and then the viruses are reactivated, maybe by the antibiotics or by borrelia burgdorferi, and then it's no longer borrelia burgdorferi infection, or Bartonella or

Rickettsia. It's maybe more the virus direction. This is my next challenge and I want to bring that forward.

Kirsty Cullen - [00:23:51]

So let's talk a little bit more about those key viruses that you test for. So you mentioned obviously the enteroviruses and the herpes virus group. Firstly, can you expand a little bit more about what enteroviruses are?

Dr. Armin Schwarzbach

Yes, enteroviruses are viruses, as it is named, the gut viruses, they inflame, not just your gut, sars-cov-2 also inflames your gut, could be also named enterovirus.

The enterovirus became historically famous by the poliomyelitis virus, which is also in the gut. A gut virus, but it's also spreading into your brain. And, you know, it makes also a lot of neurological problems. We name it, they are neurovirulent, they have a high aggressiveness in the nervous system.

And these enteroviruses, what I can tell you now, I find a lot of patients with that. I would say 95 percent are positive for that. Echovirus in a double infection, these are the three, poliomyelitis, echovirus and the coxsackievirus. They have also different subspecies, different children. So they all belong to the enterovirus group.

And this seems to me in the gut, really inflammation, process the gut, the food intolerances, leaky gut, also the multiple chemical sensitivity group is very important in this, but also the herpes virus group. This belongs altogether. And what I found the last years, more and more, threefold, fourfold, fivefold infection with viruses. I am really surprised. I would not say shocked, but this is a new thing we need to care for.

Kirsty Cullen

And within the herpes viral family, what are the symptoms of those viruses, are they similar across that herpes group? Do they sort of work collectively?

Dr. Armin Schwarzbach

The herpes virus group, everybody knows the herpes of the lips, it's easy, you see it. But the problem is, this persists in the ganglia and it can inflame your brain. We have, in this herpes virus group, herpes simplex 1 and 2, the genital herpes, it can also do cancer. It can also do neurological problems, it can do heart problems. It's a cardiotropic virus, it's a gut virus also, it can inform your gut. Varicella zoster virus, the chicken pox virus, there came a study with 23000 patients after herpes zoster, and 59 percent had apoplectic stroke. And of that herpes zoster group, really double blind randomized with 23000 patients, and 38 percent had apoplectic stroke.

So these viruses make the arteritis. They inflame the arterial system, the arteriosclerosis. And then you got this, in a follow up situation. And they are highly contagious. Also cytomegalovirus, Epstein Barr virus, what we think, oh, I have it once in my life, that's all, I have once kissing disease. That is absolutely not correct.

We have patients with Non-Hodgkin's lymphoma. We find now we can treat them for the viruses. I do a lot of presentations in cancer and autoimmune disorders for that. Also Hashimoto's, juvenile diabetes as an example done by coxsackievirus, you have the HHV-6, really multiple sclerosis virus. It does multiple sclerosis.

We have the HHV-7, the HHV-8. This is the whole complexity, brought to me more. The symptoms are always similar of these viruses and the tests need to tell you the story, do I have an IgA positivity, a reactivation? And the patient is sometimes asymptomatic. We have carriers, we name them silent carriers, without any symptoms.

We have also inflammation of the gut, the heart, as I mentioned, the joints. And you would say that's Lyme disease, but this is absolutely not correct. And no antibiotics are allowed in this situation. It doesn't make any sense, because you will have more dysbiosis, you will suppress the cellular immune system, you will get more immune dysfunction, more inflammation. You need to know what to treat.

Kirsty Cullen - [00:28:11]

And can you explain to us why viruses are so impactful when it comes to mitochondrial health and energy production?

Dr. Armin Schwarzbach

Yes, everybody knows when you have a cold or flu, everybody knows that you're tired. You lie in your bed because the viruses are intracellular and they suck your energy from the mitochondria, so they use your ATP. And you have low ATP levels, therefore, we treat with ATP to substitute it. But, so long as the virus is active, you can use ATP substitution therapies or you can do mitochondrial therapies, this is symptomatic therapy. This will not bring away the virus.

The virus is still active, sucking the energy away. That's the problem also of this sars-cov-2. But the question is, is it sars-cov-2? I don't want to discuss that now, or is it maybe opportunistic virus reactivated or some other opportunistic pathogens? The problem are the mitochondrial pathways. So everybody with this virus, chronic virus infection or persistent virus infection or reactivated infections, everything is so important on the immune system.

Our immune system plays the main key function in all of that, immune dysfunction, inflammation and the infection for sure.

So all of this virus is sucking away that. And, you need again, also in the Lyme disease group, individual profiles if there's not a virus behind. If you don't know that, your therapy is misleading and antibiotics will help against the bacteria, but not against the virus.

Kirsty Cullen

So Armin, can you explain to us a little bit about how viruses replicate and why it is particularly that they enjoy a weakened immune system?

Dr. Armin Schwarzbach

The viruses like our lymphatic system, you know, Burkitt's lymphoma, maybe it's from Epstein Barr virus, EBV, that was invented in England, and England is still on the forefront of science in Epstein Barr virus.

So Epstein Barr viruses, they replicate in the lymphatic system, in the lymph nodes. So sometimes sore throats, swollen lymph nodes, you have replication in the liver, in the spleen. So they inflame your liver, and the chronic reactivation, and they can hide, they can persist also, intracellular. So it's difficult to reach them. Sometimes I say don't wake a sleeping lion in your body. Some say, oh, I need this to bring that away. I say, OK, you're clinically fine. Why should you attack the virus? Let it sleep. We don't have remedies which can kill all viruses, it's impossible.

Kirsty Cullen

And within your testing menu, I know there is a marker that is quite useful in terms of viral challenge, which is the CD3 marker. Could you explain a little bit more about that and why it is so useful to us to assess the state of the immune system?

Dr. Armin Schwarzbach - [00:31:11]

Yes, the CD3 marker is in a panel, we do also CD56, that became famous in the 80s. It's a flow cytometry by Freddie Mercury from Queen, the first well-known HIV patient. So we did the first markers, I was engaged in Munich at that time, and we worked on CD4 cells to help our cells. And we found out with this whole group that HIV patients had a low CD3 cells.

This HIV model, you also can transpose to other chronic viruses. So every virus, also sars-cov-2, will lower if it's getting chronic, hypothetically, it would lower your CD3 cells.

The CD3 cell marker is a really good marker to get an overview about the general mature T cells. So we have also the CD56 natural killer cells, which also going down in the final situation of this chronic cellular immunosuppression by the viruses that destroy our cellular immune system. And antibiotics do the same. And if you use antibiotics, plus have a virus in your body, you know, it's a catastrophe.

Therefore, some patients get local pain during antibiotics and need to be careful with it, because viruses blowing up more and more, immune controlled viruses, opportunistic viruses. And then you have, again, the problem of this low CD3 cells, and if it is getting lower than 200, patients can die. They need to be isolated, so this is a perfect marker.

And for your therapies, you are therapists, you are wonderful in that, you need to support the cellular immunity. You need to bring it up. It's a really good marker, absolutely good. And CD56, breaking down killer cells, you need to work on it. It's always the same situation.

Kirsty Cullen

While we're talking testing terms, I know a question I get asked a lot in clinic is, what is the difference between ELISpot testing and what exactly is that, and classic sort of IgG, IgM antibody testing?

Dr. Armin Schwarzbach

I'm on the forefront of this ELISpot and the cellular immune responses. Now, everybody's following us with this interferon gamma release, it reflects, ELISpot, if it's a currently active infection. For viruses, it's perfect. We have the lytic and the latent phase in that. So we can say it's the virus EBV, CMV replicating or not. It's a great test.

This ELISpot is famous for tuberculosis and it's accepted for tuberculosis. It's also named quantiFERON test or ELISA. The ELISpot is one of these producer names, it's interferon gamma release assay, which means that the TH1, that this in the first phase, you have a bullseye rash and later on the bullseye rash is going away. You have the persistent bacteria, Borrelia in your body or Bartonella in your body. The ELISpot will stay high, positive. It's a lymphocyte based test. It's 20 to 200 volt more sensitive than any antibody test in the world.

And this is really important to check the cellular immune responses. Nobody's doing that. Now Corona is changing that situation, I'm happy about that. And I think we need to check every patient for cellular immune responses. It reflects the last six to eight weeks, you take the blood today and the ELISpot remains higher, six to eight weeks before. But you cannot say how long ago it was. The CD57 cells, they can do. They tell you it's chronic, it's a chronic Lyme disease, a chronic bacterial infection. They can show you that.

But this ELISpot reflects a short time. And then after a while, we have now the next generation of testing, the Borrelia ISpot, a Lyme ISpot, how you want to name that. It's interleukin 2 additionally to the interferon gamma release. And then you can look, is it is it a memory cell reaction, is it a past infection, or is it still active Lyme disease, or is it still active cytomegalovirus, or is it both? Is it parts are active, parts are not active, or is it just past infection? And maybe also some information about immunity against that.

This is a tremendous development, I'm so happy about that. So we switch now more and more to cellular immune reaction because the IgG and the IgM, to be honest, they are not helpful, they are

really not helpful.

IgG, oh it's a past infection and the patient suffers from sars-cov-2. Maybe this patient has just IgA antibodies. IgA , IgA, IgA. IgA is the only antibody where we have a chance because it's localized, produced 20 percent, 80 percent systemically produced. The IgG and IgM are just systemic markers. And exactly what happens in influenza, Borrelia, Yesenia, viruses, herpes, varicella, these are localized infections. They are not generalized infections. And this is really important to document the IgA. IgA , IgA, IgA.

I can just say it 100 times, do the IgA antibodies, not the IgM. This is nonsense to do that.

And also to mention, viruses react much stronger, as I mentioned, on the cellular immune system. So you have massive interferon gamma release and the Lyme patients and the bacterial, the co-infections, they react, adjust on a low level in the positive immune responses. So it's really important to do that cellular immune reactions. But I don't want to go away from Western blots or from ELISA. If you have an IgA ELISA, maybe we have in the future some for Borrelia IgA antibodies. That would be also helpful.

Kirsty Cullen - [00:37:16]

And I think where confusion comes for my clients, particularly, is we can look at an ELISpot and say we've got a currently active infection and we can also look at an IgG result. And I think the confusion for them often comes, well, if I've got an IgG antibody response and that's talking about a past infection, as you say. But actually there is a point at which, if we've got an elevation of IgG response, that might indicate that we've got immune reaction again, is that right?

Dr. Armin Schwarzbach

This is correct. You can say if the titer increases double, you need a 100 fold increase of the titer in the ELISA. Or, if you have significant more bands in the Western blot or we do now the SeraSpot, the MicroArrays, the modern Western blots, more because they're better standardized.

But you're correct, it's good to have that, if you have antibodies you can monitoring, so I don't want to discuss away the antibody test, but I want to say clearly, we need to check TH1 immune responses, the cellular immune system, plus the TH2 immune response, although the antibodies. And both complement each other.

But what we know, that in chronic Lyme disease or chronic other infections, the antibody titers are going down. The patients develop subclass deficiency, IgG1 IgG3 mostly, they have humoral immunodeficiency, they cannot produce antibodies. They are blocked. So they are not helpful. And the doctor says, oh, you don't have Lyme disease. I exclude Lyme disease. You have the typical symptoms maybe, but you're crazy, you don't have antibodies, go to psychiatric NHS doctor. So this doesn't make any sense.

Kirsty Cullen

It's a very complex picture, isn't it? Which is why you need a practitioner and a lab partnership that can really work to explain those results to you.

Dr. Armin Schwarzbach

Exactly. Yeah.

Kirsty Cullen

So Armin, could you explain a little bit to me about what your three "i"s are, you mentioned them earlier. That's your recommended approach to tick-borne disease and co-infections.

Dr. Armin Schwarzbach - [00:39:17]

Yeah. Jack Lambert did a conference, I think a really great conference in Dublin, in 2020. And he said also we need to respect the three "i"s, infection. The second is the immune dysfunction and the third is the inflammation.

We should diagnose and we should treat. And so I think this model came also from, again, sars-cov-2. But you can generalize for all of these infections. It's not just for this.

We have also, by this, different options to treat. With herbal therapies, also we have great information, all the scientific information, published from Stephen Buhner, just to mention that name. I think he is also on the forefront in his evidence based work. So the Buhner herbs, and this is really evidence based medicine.

So I'm on the virus track now and I say antibiotics were yesterday, we need more to focus on the immune dysfunction. We need to be focused more on the inflammation and we need to treat these viruses, the parasites and the bacteria for sure. So viruses need also cellular immune supporting therapies. We discussed the CD3 cells as the marker for that. We need lymphatic therapies, maybe lymphatic drainage, detoxification. This is chelation, that some are doing, this is detox important. We need something against the inflammation, anti-inflammatory diet, just basic nutrition or whatever you can do.

Also, you can do work with transfer factors on that. We have great transfer factors to support that coming from America. Garth Nicholson worked on that.

But my work is focusing on the viruses, respecting Lyme disease and other infections. On the other side, if we can treat these three "i"s, the fatigue can be reversible through a correct treatment. But the baseline is a correct early diagnose profile of individual chronic infections.

Kirsty Cullen

And can you just mention a little bit about how those chronic infections might impact on our general immune function?

We often have people in clinics saying, well, OK, I'm ill with CFS, but I never catch a cold or I never seem to mount a normal immune response. Or equally, we'll have people with a very activated immune response.

Dr. Armin Schwarzbach

Now, this also to me, very important. When I heard the first presentations in America, they said we have, or the CDC knows, we have a TH1 TH2 disbalance. TH1 would be the Borrelia ELISpot.

In different gamma release, this is the first phase of the infection. Maybe it can be for months or years, but after a while it's switching into a TH2 domination and this means it's more the interleukin-2 and TNF alpha.

But what we need, we need a balance between this and we need also products which can help us. And by this TH2 dominant structures, we get over TH17 autoimmune disorders.

So we have the chance, if you break that, then the autoimmune disorder is reversible. If we can do the balance of this TH1 TH2 system. Again, some markers for that could be interleukin-2 to measure it, quantification, or TNF alpha to measure it for the TH2 system.

And different gamma is, I think, the main cytokine. These are cytokine storms, we name it also, they suppress the CD57 cells also. So we need markers also, easy markers to generalize this TH1 TH2 disbalance.

Kirsty Cullen - [00:43:20]

So essentially, what I'm hearing really, is that you would say where infections play a role in CFS, strategies to deal with those infections, to identify them, strategies to support the immune system, to reduce inflammation, they're central really, to seeing health improvements in fatigue.

Dr. Armin Schwarzbach

Yeah, so as long as the infection is active, and the immune system is suppressed, and you have the inflammation, so long patients will suffer from the symptoms, that's clear.

So you need to break this cycle. If it's an infection really active, you have also patients without infections. This is not a general rule that everybody has an infection. We need to select them from this, peeling the onion model, which is really important.

So we have also the 5G, we have the electrosmog. We have the genetics, we have the epigenetics. We have dirty water. We have the huge challenge of the environment, environmental medicine. We need a profile also in this, doing by clinics, and I know you are one of the leading clinics there. So we need to bring up different specialists in this field.

And this is far away from the school medicine, or what I learned at university, to be honest. We need interdisciplinary teams with nutrition. We need with also, how we can bring away the infection. Maybe we need lymphatic drainage. Maybe we need a herbal specialist or herbalist. Maybe we need also some antibiotic specialists in that, or virus specialist. We need a detox specialist. We need a 5G specialist. We cannot change our genetics. This has influences on the vitamins that you use.

But the question is, who can pay the bill for all of that, you know, so. But in the core, I can tell you, if you bring the picture and you have this story with an infection, so long it's active, you can do what you want in this being the only model, the status quo. The patient will improve a little, but the infections are still active.

You need to bring them back into a good atmosphere. You need to arrange with this, you live with herpes simplex, you can live with it. You can live with Borrelia. The question, I need to kill Borrelia, I need to destroy that. I think we all are full of pathogens. Honored pathogens, let me name bacteria, yeast, mold, which doesn't do anything with us. But if our immune system is in dysfunction, and the immune system, natural immune system, the gut place, for me, the most important role in this.

Kirsty Cullen

And I think that really illustrates the reason why there's no one protocol that will suit all. Because obviously it's very complex and we need to understand the individuality of that particular client to be effective, essentially.

Dr. Armin Schwarzbach

That's correct. And the idea was to develop a wonder truck for all. But as you can see in the history of the patients and the exposures, it's so different from patient to patient. The travel anamnesis, the childhood is different, the stressing factors. I forgot the cortisol hormonal complex in this discussion.

So we need to get a complete picture from the patient. What I'm representing, I'm in this infectious diseases field. This is a life clinic. I work two years in hospital with clinical infection, also oncology. I work... So I know about that a lot. And this is my life. This is my mission. And therefore, I want to help you, or others. And really, this is my heart.

Kirsty Cullen

Perfect. So Armin, where should we direct people if they want to read more about your work?

Dr. Armin Schwarzbach - [00:47:06]

Yeah, we need to write some books about that. It's not so easy, because time is missing for all of us and I'm not retired. On the other side, you can go on the website. It's arminlabs.com

We have a lot of information but don't forget we have individual profiles and therefore please, you can download the co-infections checklist from there. It costs nothing. It costs the patient nothing. And if the patient is not filling out anything, or the Lyme, I have a short Lyme checklist. You can also do the Horowitz huge checklist but this is not specific for Lyme disease, this is for nearly everything.

We need more infectious diseases checklists where we're working on, opportunistic checklist. This costs nothing. And I think if you don't cross any of these symptoms, you are not in this group, you don't belong there. And maybe this is also to spare your money.

Kirsty Cullen

Armin, huge gratitude for joining us today. We really appreciate your time.

Dr. Armin Schwarzbach

Thank you so much, Kirsty. I hope you will do follow up.

Kirsty Cullen

Wonderful. Thank you so much.

Dr. Armin Schwarzbach

Thank you. Bye bye.