Introduction and speaker background

Hello everyone My name is Dr. Richard Horowitz, and I'm your co-host from the healing from Lyme Summit. It's my great pleasure today to have you meet with one of the greatest neuroscientists and leading researchers in Alzheimer's and neurocognitive deficits in the world, Dr. Dale Bredesen So, Dale, I'm just going to read a quick bio.

It would go on forever. You have so many accomplishments at this point. Let me just give people a quick overview. You're an intellectual, internationally recognized expert in the mechanism of neurodegenerative disease such as Alzheimer's disease.

you graduated from Caltech and got a medical degree from Duke. and you've been working in your laboratory studying the basic mechanisms underlying neurodegenerative diseases.

your over 200 research papers. And I know now you're doing randomized trials on Alzheimer's. So since my Lyme patients are all cognitively impaired, I think you and I may have some interesting discussions to have about what you and I have been doing and kind of how they overlap.

So thank you for doing this today. It's really great to see you again. Absolutely. Always great to talk to you, Richard. So, why don't you talk a little bit about the relationship of, what you're seeing in your practice?

I knew you and I share a lot of overviews. We have a multifactorial model, right? For, basically cognitive dysfunction. Can you share a little bit about your background, how you got into doing what you're doing, and where you think the overlap lies with Lyme and tick borne and kind of some of the models that you're seeing at this point.

Yeah, such a great point. So, you know, this really gets into how medicine has been mispracticed for the last, you know, hundreds of years where we focus on one thing, we say, okay, we're going to give a drug to fix this.

We spent, as you said, you know, many, many years in the lab. We have the 30 years I ran a basic, neurology lab looking at what drives the phenomenon of neurodegeneration, whether it's Alzheimer's, whether it's frontotemporal dementia, ALS, Lewy body disease.

Right. This is the area of greatest biomedical therapeutics failure. As people say, everyone knows a cancer survivor. No one knows an Alzheimer's survivor.

So we, as you know, reported the first examples of reversal of cognitive decline back in 2014. We published actually another hundred. Back in 2018, we published a successful proof of concept trial last year.

And now this year, we're working on a randomized, a larger randomized controlled trial. But here's the thing. What we found in the lab fits beautifully with what you've been doing for your patients and what we are doing as well, where what it turns out is what we call Alzheimer's disease is fundamentally a network insufficiency.

You have about 500 trillion synapses inside your skull. It's amazing. Got this amazing supercomputer. It has its own supply. It has its own demand for different subnetworks.

There's a neuroplasticity subnetwork. There's a motor modulation subnetwork, which is what goes awry in Parkinson's. There's a power subnetwork, which is what goes awry in ALS.

Each of these subnetworks has a supply and a demand. And when the supply starts to go down and the demand starts to go up, it starts to invalid. Literally, it's now have to pull back.

And so with Alzheimer's, of course, the first thing we see is you are you can live with the memories you've made

over X number of years, whether it's 40, 50, 60, 70 and of course, the, the big increase in Alzheimer's is in the 40 somethings, in the 50 somethings in the last ten years, sadly.

we, you know, we used to say this as a disease of the 60s, 70s, 80s, 90s. We now know this. This is starting for people in their 30s. You can see changes with these new blood tests now.

You can see changes very, very early on. So what happens then? The the the main drivers of Alzheimer's disease are three. It's anything that reduces energetics.

And so that's mitochondrial compromise as you. Well know. it's reduced blood flow. It's sleep apnea. it's any of those things that are reducing the support to your brain.

The second thing is anything that increases an inflammatory response, which is why, by the way, ApoE4 is such an important risk factor. It is a pro-inflammatory gene.

Multifactorial model of cognitive decline

And that is tick borne illnesses incredibly common, mycotoxins incredibly common, as you know. And these things run together so commonly as, you know, change in the oral microbiome, some mild chronic sinusitis, a leaky gut, a poor, you know, metabolic syndrome with a high CRP.

These things we see every day. And then the third thing, of course, is toxin exposure. And actually, I would love to hear from you. certainly we know that there are toxins associated, with, with mold species, to what?

But I've, I've read both sides. To what extent are there actually toxins being produced by these tick borne illnesses? You know, there are. It's a great question.

and I've got a couple of follow up questions, actually, for what you just said about this, because, you know, the 16 point emissions model that I use, it's exactly that we look at the microbiome, we look at leaky gut, we find mast cell, we find all these infections.

We find toxins. The Lyme patients don't sleep right. and a lot of times they have downstream effects including mitochondrial dysfunction plots, dysautonomia, hormone dysregulation, right, etc..

So I mean, the model is is pretty similar. And you know, regarding toxins, we do see that these toxins do affect, you know, cognition. Borrelia was published a couple of years ago.

Most people don't really talk much about it, but there have been some studies on Quinolinic Acid, you know, that have showed up in some of these patients with tryptophan metabolism.

A clearly that it is a problem in some of them. there was one that Dr. Donta used to talk about years ago. BP talks one now. Interesting. There wasn't a lot published on this in the last couple of years.

Most of the stuff we're seeing now with toxins, we relates to heavy metals that either, finding them in the bloodstream or, you know, occasionally doing a six hour urine gMSA.

But you're right about mold. I mean, the last paper we just published, it was 84% of our people were exposed to mold toxins. And the problem is it does cause cognitive dysfunction with, fatigue and a lot of the overlap of the Lyme symptoms.

So you're finding how often are you actually looking for the the mold toxin to these toxins in your, in your dementia groups here. But we look at it in every single person you do.

And you could argue that it's it's one of the most common contributors. So, you know, I've really come to believe that the we're all exposed to some level of this.

So some people are exposed to a very low level grade, some people it's intermediate, some people it's very high. And then everyone's got a certain amount of ability to continue to detox.

So as long as you're keeping up with that, you're in pretty good shape. When you're behind on that, because of genetics, because of what you're eating, because of that exposure is higher, because your glutathione is low, because you're poor methylation, whatever it happens to be.

Of course, these things are starting to increase and increase, and now you really run into problems. And yes, you know, I think part of the problem is that these are dynamic neural networks.

And so what happens is when you are on the wrong, you're on the losing side here, things are just getting worse and worse and worse. And this is why you really have to change.

You've got to change the exposure reduce it. You've got to improve the ability to detox. And I think this is also why you see these things running together so much.

Because when you have either one of them a tick borne illness or you have mycotoxins, exposure, it reduces your ability to deal with the other one. And so what we do in our treatment and what we've done since, you know, the very first patient we reported, the first patient was, April of 2012 came to see me and I, and I said, look, I haven't seen a patient in 20 years.

I'm a I'm a lab director. What what are you doing? And she said, no, I heard you guys are doing something different in Alzheimer's disease. I said, well, look, we just got turned down to do a multi-pronged approach for people with cognitive impairment.

If you want to go back, you know, the IRB has said it's too complicated. We're not going to do this. So I just gave her the list. Oh, look here, you can go through all these things.

So she called me three months later and said, I can't believe it. My memory's better than it's been in many, many years. And I'm so surprised I'm better.

I thought, okay, we're on the right track. And now we've got, we've had over 7000 patients who've now gone on the protocol. and yes, all we're really doing is we're decreasing the side of the demands and we're increasing the supply. Duh.

You know, we're just basically trying to improve that dynamic interaction, that situation. And for so many people I know, Kat Toups So whom you know, Dr. Kat Toups was part of our first trial and by the way got great results with her patients.

She's also part of our second trial. She pointed out that in her initial ten patients, four of them had tick borne illness. So that's a lot of people with Alzheimer's disease.

we're looking at the statistics say that 45 million of the currently living people in the United States will die of Alzheimer's. It is an incredibly common problem.

And 40 because I've seen that it's preclinical dementia. I've seen that number around 46, but actually 45 million that will die. That will get it. So so it's about 15%.

If you just do serial autopsies, it's about 15% of the population. So it's incredibly common. And yes, I think that I think tick borne illnesses are one of the most important, one of the most often overlooked and one of the poorest treated entities that contributes.

We see sleep apnea. We see changes in the oral microbiome. We see mycotoxins, the mycotoxins, by the way, or the other tough one to treat. We see vascular disease.

And by the way people respond beautifully to exercise with oxygen therapy when they have vascular problems. And we and, you know, this is one of the things that really gets people to improve.

They respond beautifully to improving their insulin sensitivity. You know, Richard, one of the interesting things to me as a neuroscientist in the lab, if you look at what it takes to power a neuron, and of course, your brain takes about 20% of the energy of your body, it's a tremendous amount of energy.

There are only two things the brain can burn. It can burn glucose in sugar and it can burn ketones. That's it. And so what happens to many people? Most of the people I see, they've lost the ability for both of those.

They have insulin resistance. So they're no longer able to burn glucose very efficiently. And now what happens is because you have high insulin as you're pouring out, you've got this insulin resistance.

It prevents you from making ketones. So they've lost both sides. So I consider it an energetic emergency when I see someone with cognitive decline. And if you look at all people with cognitive decline, the number one in terms of continued decline is Alzheimer's.

But, I think you're right. You know, brain fog from things like Covid and tick borne illnesses is really becoming exceedingly common. So what we have to do then is we have to get back the insulin sensitivity, which we do with a plant rich, mildly ketogenic diet.

And then we have to get back the ability to make ketones. And at the beginning we just give some exogenous ketones, but now slowly move them into endogenous ketosis.

And this combination makes a huge difference. Yeah. You know, there's just an article. I just read it this morning. They were talking about for those people that can't do, you know, real intermittent fasting for 12 to just 16 hours, that if they found it, if they did five days a month, it's just I just read it this morning, and they managed to get a very low caloric diet and they could reset the insulin receptors.

for someone like myself, you know, I, I've always been looking to, like, the way I still work. I'm still working hard as you are. It's not so easy to do a full, you know, intermittent fast for 12 to 16.

I've done it. I've tried it, and it did work. I just needed to skip breakfast, ultimately. But have you seen other ways of, of reversing this?

Inflammation, toxins, and Lyme overlap

Because obviously you can give ketones and kind of do it, but do you do you think that there's maybe some merit to just basically a couple of days, a month like this with a very low caloric diet to try and reset the biological clock a bit?

Great point. So there are a couple of key caveats there. And and so I know. Right. Valter Longo very well. Valter and I go way back. We published paper together at UCLA when he was a graduate student, and I was a beginning assistant professor, great guy.

And of course, he really developed the fasting mimicking diet, which is a diet that it really doesn't, trigger your mTOR. And so, you can you can do that.

Now, here's the issue. And there are two of them, really. One is if you are frail, if your BMI is 18, and we do see a lot of people with cognitive decline who are frail.

And so you got to be very careful. And I see them often with fasting. They will do worse instead of better. The ones that are the BMI of 26, 27, 28, those are the ones where it's easy to do the fasting and they do great.

And they, you know, they they get insulin sensitive again. They make ketones again. Everything's great. We give

them the exogenous ketones just at the beginning to help because again, you're you're dealing with a situation where the neurons have simply not had the energy they need for quite some time.

And of course, professor, Stephen Cunneen from Canada showed that giving people exogenous ketones who had MCI improve their cognitive scores. but the issue with fasting mimicking diet, what what Valter has said is and I think, you know, it works very well.

He's had great results, for example, with cancer, with getting this fasting to improve outcomes in cancer treatment. and so his thing is okay, go ahead and do the five days and then you can go and kind of have a regular diet.

Our worry is if you go right back to a standard American diet, you're going to hurt yourself. So I would say, sure, start with a fasting mimicking diet, especially if your BMI is above 25.

But then please don't go back to the standard American diet because that's what you that's what got you here in the first place. So please do. And you, you know, you made a good point.

You know, if you skip breakfast, you know, you skip one meal a day, you have two meals a day. You're going to have typically 12 to 16 hours of fasting.

And it's not really a problem. And, you know, measure your ketones. It's easy. You can do it either with a finger prick method and measuring your BHB.

you want to get it over 1.0 million molar, or you can do it with a breathalyzer if you want to. There's a nice bioscience breathalyzer, for example. you want to get over ten aces on that one, and just one if you get there once a day, that's great.

So, so regarding the energy requirements and by the way, you know, our chronic Lyme patients also they they don't do well with sugar for many reasons.

Number one, half of the patients who come to me have metabolic syndrome. And they swing their blood sugar with reactive hypoglycemia. But the bugs obviously feed off sugar.

And you know, we're not giving them long courses of antibiotics anymore. But candida still an issue, right? We have to be careful. So if you don't address the underlying sources of inflammation right.

Don't kind of pull out the toxins, deal with the infections. Right. Is it still possible with mitochondrial support because you were talking earlier about, you know, the energy requirements.

And I know they're looking at this now that it's not just a question of these of these tangles in the brain. and the amyloid plaques. That's the problem.

But it's also an issue with the mitochondria even using low dose methylene blue to stimulate it. can you get beyond that with mitochondrial? You're really always have to get to the underlying sources of infections in the toxins for this to really work.

Great point. And it depends on where you are on that supply versus demand. Now what happens is as long as you have ongoing inflammation and you mentioned mast cell and there's, you know, microglial activation that's very well described in Alzheimer's disease.

then you are you increasing that demand. And by the way, what is amyloid? Amyloid is part of your innate immune system's memory component. And as you know, the innate immune system, the evolutionarily older part of your immune system, the less specific part of your immune system lives in three places.

It lives in your bone marrow. So if you're doing all sorts of, you know, saturated fat and stuff, you're going to have this hyper response, if you so you know, it's basically saying you've had insults.

I'm getting ready for another insult. It lives in your endothelial cells, which is why you have this increased thrombosis in Long-Covid. You see it with Alzheimer's as well, which is why we like to use natto kinase.

For many of these people, this hyper coagulant state is associated with inflammation. And then, of course, the third place it lives, it lives in your tissue macrophages, which in the brain of course are your micro glial cells.

So if you're kind of right there on the border, yes, you can get away with just supporting the mitochondria and goosing up the energy, doing some effort, getting a good, plant rich, mildly ketogenic diet.

However, as you well know, if you have a big exposure to mycotoxins or you've got a lingering, Lyme disease or other diseases, then you're going to have to do more.

Now, interestingly, Dr. Christine Burke, another person you know, well, Christine showed that if you do the basics, if you do the diet, exercise, sleep, stress, your brain training, detox and some targeted supplements, the basics of what we think of as the basic seven, you get improvement for about 9 to 12 months.

That buys you the time to look to see during that time. Is there Borrelia is there, Bartonella is there bébés, you know, is there air licky a and a plasma, what have you.

This is so common. We see, especially with people who kind of have these relapses where they do well for a while. And now, they start to go downhill. And we often find these and I have to say, Richard, one of the toughest things for us is having people do the right tests.

They just say, oh, I you know, I did a quick test on you blank, whatever it is. And then, you know, there didn't seem to be much. So I don't think they have tick borne illness.

And, you know, meanwhile the person is just continuing to go down. I was like, wait a minute, this is a terminal illness, Alzheimer's. So please look carefully.

Please do all the tests that Dr. Horowitz tells you are the right tests to do. Because, you know, when people come in for cognitive decline, only one of two things is going to happen.

Either we'll figure out what's going on and make them better, or they will die. So this is so critical to to go in there and find the right thing. Well, what I think is fascinating about what you're finding, though, from what you told me earlier, is so at least in the initial ones by my cat tubes, it was like four out of ten patients who were saying with if that had Lyme.

Do you have a rough idea at this point, like in your population of cognitively impaired patients, how many actually have tick borne? And again, it goes back to the testing because, for example, you know, if there's at least eight major species of Borelli in the U. S., and I don't use a Lyme immuno blot for my Gen-X and I use it, Eliza, I'm going to miss at least 50% of those cases.

If they've got European strains or up to now, 18 different species. Right? So you obviously have to do the right test. But do you have a rough idea how many of the people in your clinic actually have it right now with toxins?

Because that's really what we're seeing is reversing a lot of this cognitive decline is I treat with that zone. We pull out the toxins. you know, of course I get them to sleep, and deal with mast cell and everything else, but it's ultimately the infections and toxins that are driving a lot of this immune dysfunction and inflammation.

so how much do you actually see that you think is driving this whole epidemic? Yeah, it's a great point. And because of the incomplete testing, we don't have a great number.

So we have a minimum. my guess is when all is said and done, it is going to be around 40 or 50%. And here's why I say that. Partly because, you know, Kat bothered to look more than most people do.

And she saw that this is very common. And the other thing is we've got a paper now that's going to come out showing long term improvements. So you know, this has never been documented before where you make someone better with Alzheimer's and then they stay better for years.

We have people now over a decade who have continued to have sustained their improvement. Now, what we found when you look at these people, they will often get improved for three, four, five, six years and then they'll have some secondary decline.

And when you look further, then you say, oh, wait a minute, now they have something we didn't pick up before. And one of the common things to find is a tick borne illness.

That's kind of been going along there for a while. And you're, you know, you're able to handle it for a while. And now finally you're failing to handle that.

And so now you treat that and they come right back together. We had a great example recently of a woman, who was on for six years and did great her seventh year.

She started to have a re decline. And, you know, she turned out to have mycotoxins. She turned out to have a she turned out to have, sleep apnea that hadn't been treated appropriately before.

And she turned out to have some Bartonella. And so, you know, you got to look and you got to treat these things. and when you do that, you know, you get better.

And so, you know, again, what we're seeing is that this disease, as I said earlier, it's a, it's an a, it's it is a network insufficiency. But it is driven.

This insufficiency is driven by a chronic mild innate immune system encephalitis. That's really what's going on. And how often are these chronic mild encephalitis driven by tick borne illness?

Energy metabolism, fasting, and ketones

A lot as you well know. so I do think that, you know, if you look at the top causes of cognitive decline, it is going to turn out to be metabolic syndrome.

As you and I both know, this is a very common problem there. Somewhere around 80 million Americans who have this, and very addressable, and it is tick borne illnesses.

It is mycotoxins and mold exposure, because what better way to goose up your innate immune system than to expose you to either molds and mycotoxins or to tick borne illness?

I mean, those are probably the two most common ways in our country to to goose up your innate immune system with, you know, of course, the other one being, you know, vaccination with adjuvants, so, you know, that includes adjuvants.

So unfortunately, that's an unfortunate one. Yeah. That one you really have to kind of weigh, what's the you know, what's the advantage? What's the disadvantage? So.

So, Dale, if people have questions about, you know, the things we're talking about today, want to get involved in your studies, how do they contact you or get involved?

Yeah. you can look at a Dr., brother. Centcom. You can look at my Cognos copy. We recommend everyone you know. Everyone knows when you turn 40, you get a colonoscopy.

if you are, or you turn 50, if you're 40 or over, please get a Cognos couple, because these problems sneak up on you and just go to my Cognos Capcom. The other thing you can do is go to my CQ test, so you can do a free

online test to see how your cognition is doing at my CQ test, any of those.

KPIs for cognitive performance. Of CQ? I'll c q. Q. Yeah, so it's like an IQ. This is cognitive quotient exam to. Make your grade. It. So so question for you this that patient earlier that you said was stable for 6 to 7 years.

My question is with all the small particle pollution 2.5 you know parts per million or less that's now going on with the wildfires and Covid 19 getting up into people's brains.

Right. And the flu viruses, which have been associated with Parkinson's and neurodegenerative, how are we protecting people? I mean, you and I have discussed this a little bit before, but do you think there's a role for low dose naltrexone to decrease microglial activation for low dose melatonin, to stop an LR three inflammasome for maybe a touch of that.

So I've always question this, you know, just a little bit. What do you think is going to be the answer to protect people about what's going on with all of these insults.

Yeah. You know, you bring up such a good point. And yes, I absolutely think and we have many patients who are on low dose naltrexone, for example. And I think that your homework is incredibly important.

And I would like to see many of these people, with Alzheimer's disease, have a dapt zone, treatment because I think that many of them would, would do better with adapt.

So and I love the combination. You're getting rid of the organisms, but you're also giving this anti-inflammatory effect because it's really interesting.

If you look again at what is also this has been my interest as a as a lab researcher for years. What is this thing we call Alzheimer's? And it really is this network insufficiency that's driven by a hyper response, which is why ApoE4 is such an important risk factor.

About two thirds of the people have it, and unfortunately, 75 million Americans are ApoE4 positive in the United States. So what happens is you are hyper responding to all these things that we get exposed to your hyper responding to your your tick borne illness, your hyper responding to your mycotoxins, as you said, the California fires and other fires, obviously with a little PM 2.5 particles.

Now, there was something interesting that I'm sure you saw this week just came out that showed this was from MRI, showing that if you look at people with PM 2.5 exposure, there was actually a bigger jump in the AP threes than the AP fours.

So the people who who don't have such a high risk for Alzheimer's clearly had their risk doubled when they got exposed to high levels of PM 2.5, whereas the AP fours are already at higher risk.

So the increased risk was not so obvious because they're already at high risk. But the bottom line is this does come down to your response to these. And the more you're exposed and the more you have a hyper response without clearing them.

Now if your response clears them on day one, Hallelujah. But for most of us, of course, this is the problem. And this, by the way, is why it's these chronic infections like tick borne illnesses that increase your risk.

For Alzheimer's disease, you get pneumococcal pneumonia, you you know, you clear it with a mark Cicilline a couple days or whatever. You take cephalosporins, what have you.

you don't have an increased risk. So it's these chronic infections, chronic toxin exposures, changes in microbiome that give you this long term activation of the innate immune system.

That includes making amyloid. Right. And they've shown in the literature, I mean, for people who don't obviously

follow this literature, like you and I do every day, that Borrelia burgdorferi colon localizes with amyloid in the brain.

And there's something about 7 or 8 studies by Judith McCloskey from Switzerland, Alan McDonald showing this a direct link as aspired to infection like syphilis.

Right. That relates to Alzheimer's. But of course the problem is in figuring it out. It's also a herpes virus one and two. Right. And it's herpes virus seven and eight and it's propria bacterium.

And apart from gingival and H. Pylori chlamydia the most. There's so many bugs that seem like they cause an inflammatory response. It's difficult sometimes to tease it out.

Although the Dobson part that's really fascinating for me is my patients obviously have all these other things, but the amount of cognitive improvement and all the studies we published, the cognitive improvement on DAP, so it approaches about 70%.

It's the number one thing that gets better in line patients with DAP. So and you and I have discussed this before, there were three studies on that zone.

One in mice showing that the hippocampus, it lowered inflammation, increased nitric oxide in a mouse model showing the memory improved. They had a 15 year study in Korea where the people with leprosy who took DAP zone, the ones who took it, the Alzheimer's rates were like seven times less than the ones who didn't.

And then there was a randomized double blind, placebo controlled study about 201 people. This was a couple of years back that also showed that just 100mg of DAP shown it reversed mild cognitive improvement.

Now, the question is how many of those patients who took it actually had Lyme? Or did it act as a neuro inflammasome inhibitor, just lowering inflammation in the brain, having nothing to do with it?

That's going to be one of the big questions we've got to answer as we go forward. Yeah, absolutely. You know, and you as you mentioned, you look inside these amyloid plaques and they've always been seen as, oh, you're protein misfolded.

I mean this is such an outdated concept. Your brain, when it is assaulted by these various things, produce is the amyloid as a sequester and and as an anti-microbial peptide.

And so whether it's Borrelia or whether it's, you know, HSV one, as you mentioned earlier, what have you, it actually works quite well as an antiviral, as an anti-parasitic.

I mean, it's kind of remarkable. and then, of course, you have other things that you make, alpha synuclein, which we associate with Lewy body disease and Parkinson's, is also an anti-microbial peptide.

so you see this same sort of thing.

Treating underlying infections and inflammation

And by the way, so is tau. These are all antimicrobial peptides. It's showing that your brain is responding to this these insults that are coming your way.

And so I think we're going to get better and better about understanding what's inside of those. And you're absolutely right, DAP. So probably should be a part of everyone's treatment for Alzheimer's.

And I think it's I think someday it probably will be. It's people are have been concerned because in the past, you know it's been associated with many side effects like you know, like as you've pointed out, like anemia.

So we just have to kind of get it, you know, where do we use it? When do we use it? On which people do we use

it? Do we do it on everyone? but absolutely, things like DAP Stone and LDN and other anti-inflammatory approaches.

It's interesting to me that some of these people have mast cell respond to things, like anti-seizure crp, things like, you know, Nurtec and Uber LV and things like that.

For the migraines. So yeah. So, so we migraine drugs basically. Yeah. So I think we're understanding much better this idea of what's driving this disease as opposed to just, oh some protein chose to mis fold and now we got a disease.

But and you have you and I have talked about this earlier but the part that made no sense and you started off our conversation today like this with the medical system is how do you possibly name a disease and then give people namenda and aricept or lecanemab and try and pull out amyloid with 15 to 20% brain bleeds when you have not gotten to the source of why the amyloid is being produced in the first place, or the tau is being produced, right.

It's like it's just a backwards approach. You're not getting to the sources. You know, s that you have found in that I have found which in fact, our models, you know, you and I hadn't met until just a couple of years back.

And our models basically came to the exact same conclusion. Multiple sources of inflammation, downstream effects. Right, with energy requirements. That is driving a lot of these chronic illnesses.

Yeah. You know, and this is where I think this is the difference between 21st century medicine and 20th century medicine. And unfortunately, 20th century medicine is still being practiced, but by the vast majority of physicians, you know, unfortunately.

So, you know, you go back to the dark ages where people say, oh, this person got a cough, you know, because they stepped on a line yesterday or because they, you know, they did something wrong.

They, you know, they said a bad word about their mother in law or something. And that's why they're. Did you hear me say something about. I'm sorry. I take that back.

Mom, I'm sorry if you accidentally heard that. Yeah. So you know it's true. I mean, it's just not like it. We really need an a complete paradigm shift in the way we're dealing with acute diseases.

We've got it nailed by chronic diseases. There's a paradigm shift that needs to be approached as far as the sources and downstream inflammation that's making people sick.

Well, isn't this interesting? You know, 100. What is 114 years ago as 1910, I believe, was the Flexner Report. And the whole idea of the Flexner Report was to go out and say, you know what?

We need to have more basic science to understand the medicine that we are doing. Just doing stuff for no reason doesn't make sense. Well, we need a new Flexner Report, an update to say, look, it's not about a protein decided to mis fold, it is about what's causing these things to.

These are physiological responses that ultimately become pathophysiological. And we need to identify these and treat it. And by the way, where as you well know, when you do, you see unprecedented improvements in complex chronic illnesses, be they long Covid or tick borne illnesses or Alzheimer's disease.

No, I think we're definitely going towards a revolution in medicine. And ultimately we have to because the health care costs at this point, 86% of our health care costs in the U. S.

are due to chronic disease. 70% of the deaths in the U. S. are due to chronic disease. 50% of Americans have at least one chronic illness or more. It's like, so you go to your doctor and it's like, go for your prostate exam, your colonoscopy, your mammography, check your cholesterol.

But nobody's doing what you just talked about with the CQ, which is gee, at 40, maybe we should be checking your cognitive, you know, IQ checking for Lyme, a tick borne looking for toxins, looking for insulin resistance, like knowing that so many people are going to get Alzheimer's, 15% of the US population is going to disable the health care system and basically everything we're doing, we should be starting now in a screening, right approach with all doctors.

And you don't see primary care doctors really taking on that approach of looking for all these infections and toxins and treating it. Yeah, it's a really good point.

And, you know, you have to change the way you practice medicine and change the way you think about pathophysiology. My argument is Alzheimer's for the first time is now optional.

If you just check when you're 40. See where you stand. Get on the right prevention. Virtually nobody needs to get this disease. People turn out if they they're going to find out, oh, you know what?

I am brewing a tick borne illness. I didn't realize it. Or I do have a fairly high exposure to mycotoxins, or I do have sleep apnea I was unaware of, or I do have some dysbiosis I was unaware of, or my mercury level is quite high and I was unaware of that.

These are the sorts of things that can make a huge difference, literally the difference between life and death. So I do think, you know, this is the future of medicine to do much more ahead of time.

And people have talked about prevention forever, but we're understanding better and better about what you actually have to do to get very, very good prevention of these complex chronic illnesses.

You know, regarding that, I've kind of wondered with the way that the health care system works with payers is that whether that question this, whether instead of just having centers for chronic disease management, which I think we are going to need at some point because it's getting but even prevention where you take something off your insurance policy, like if you go to your prevention doctor, but you actually do the right diet, keeping down the carbs, getting on ketogenic diet, exercising every day, getting enough sleep.

You're going to prevent your chronic illness. Getting your blood pressure under control. But most people, unfortunately, I mean, some of us do, but it's not happening enough.

And I'm wondering whether we need a financial incentive where people go to these prevention centers. You prove you go there, you hit certain milestones, and you get money off your insurance because you're going to save it down the road, right?

For the entire health care industry. It's a great point. You know, that was what was accountable care was supposed to be about. But we've just never gotten there.

And because just as you know, Robert Lustig points out in his book metabolic, which I love, he goes into this and says, look, we're dealing with Big Pharma, big food and big medicine and health care, and these are the ones that are taking the money, and therefore there's no incentive and there's actually a disincentive to do the right thing.

So there is been a lot of suppression of good medicine of I hate I hate to sound, you know, I hate to sound the alarms, but the reality is we have a suboptimal medical system.

Anybody who looks for two seconds at it can understand that. And as people have said frequently, medicine is broken. And it's really because the model we have for medical care is based on treatment of acute illnesses.

But now we are all dying of chronic illnesses. So the system is it's like we set up a system to play checkers, but now we're playing chess. It just doesn't work the same.

And so we do have to have a fundamental real reorganization and an overhaul of the medical system. And there's

there's no incentive for current payers to do that.

Right. So so question for you when when someone's trying to get diagnosed these days, I know that there are biomarkers with amyloid beta and phosphorylated tau and glial fibrillation acid protein.

A new one, a formic acid, came out when apart from the ApoE4, when you want to take a look at what is really my risk, what's going on? People can't afford F18. Pet scans.

What what what are you doing to actually give them a risk analysis at this point? Yeah. Great point. And we actually have something called Recode Reports.

so we look at all these things, but you know, the critical piece here is that there are two different parts of this. There's are what's your current status.

Are you beginning the changes. So this would be like looking at someone who's who has insulin resistance. You want to know what your status are you at insulin resistance.

Are you at prediabetes. Are you at full on type two diabetes. The same thing here. So we're literally changing from the dark ages to a golden age, where now we should be able to prevent this and reverse it in virtually everybody if they just come in relatively early.

So the tests that are good for if you have it are different than why you have it.

Testing, biomarkers, and risk assessment

And so for the if you have it, there are new blood tests, as you mentioned. Fast food towel. 217 is the best of them. It is sensitive. It has a huge dynamic range.

When you have abnormalities it goes up fourfold, whereas your or as you're able to 42 to 40 ratio, which is another one that's out there. It goes down by 10%.

It's a very tiny dynamic range. So I really like the fast photo. 217 now you complement that because that is specifically for Alzheimer change in signaling.

It's exactly what we've talked about. You go from this synaptic blast signaling making synapses to synaptic classic signaling. You're literally switching from connection to protection because you got a tick borne illness or you got a poor oral microbiome, what have you switching to a different mode in your brain, which is associated with inflammation.

Then you complement that with GFP, which is glial fibular acidic protein that is not specific for Alzheimer's, but highly sensitive for any sort of changes in the brain.

It is looking at astro glial activation. And then the third one of the triad is NFL neuro filament light. And that's looking specifically at neural damage, but not necessarily Alzheimer's.

So you can then look at the pattern. So if your p tau is normal your NFL is high. You probably have something like ALS frontotemporal dementia. You had a bad car wreck. Something like that. It's not Alzheimer's.

If your p tau is high and your NFL is not so high, you've got Alzheimer's, but you don't have a lot of ongoing damage. You're still doing fairly well.

If they're both high, be careful. You're headed down a bad pathway. so that's that's if you have it now, why you have it again. You got that goes back to just what you and I have talked about.

You want to look at what's my status with inflammation. And you could do that. So simply CRP is a great way. It's

not terribly sensitive but it's a good way to start.

You know albumin to globulin ratio is an ancient way to look at this. And yet it's pretty sensitive way. You can look at things like TNF alpha and things like that, il6 and things like that.

But but even just getting the high crp, then you want to know your glucose status. And so you want to have your hemoglobin A1, C your fasting insulin.

So you could get a homa er and of course in fasting glucose, if you're really concerned about that then you want to do a GT and check insulin levels. But for most people you don't need to do that.

Then you want to know am I, am I atrophic? have I reduced my B12, my vitamin D, my estradiol? So all the things that are neurotrophic and those are three kinds.

Their growth factors like NGF and Bdnf, hormones like estradiol and testosterone and things like that, and nutrients, vitamin D, vitamin B12, things like that.

You want to look at those, then you want to look at your toxins and your infections, just as you well know. And that's to me where the trickery comes in because it is tough.

That's why we need experts like you who say, look, this test is not good enough. You need to go to this test. And why your message is so helpful to be looking at what's, you know, am I am I concerned about this or is this not such a big concern?

So those are the tests that you need to do to determine what's going on. And for the toxins we include again, three types. It's the heavy metals. It's the organics like glyphosate and Tal you eat and benzene and formaldehyde.

And it's the bio toxins like triggered these things. And, and and okra toxin a and things like this. These are the, these are the, the three big, big, bad actors in terms of cognitive decline.

So once you've looked at those, now, you know, if and why. And then one quick question. When you're doing the heavy metals because they don't stay in the blood for very long.

Yeah. Are you just doing serum levels or do you occasionally do, do hair analysis, six hour urine gMSA. How how are you checking for gray point. And it again, it depends on whether you're suspicious of this. Yes.

It would be great to do $1 million workup on everybody. you can't. And so what we typically do is we do a screen and then we also from the history look and see, you know, does this person have amalgams, do they eat a ton of fish, that sort of thing.

We had a guy several years ago who had, extremely high mercury levels and he'd already been told, you know, you got Alzheimer's, you're going to die, etc., etc.

turned out he had extremely high levels, and then he was treated for that and did very well and then was treated beyond that, turned out also to have bio toxins.

So it's a good screening. but you're right. If there's a suspicion a lot of people like to do, urinary tests and, like to do provoke tests like a doctor's data or something like that.

some people like to do the, you know, Chris Shades, Quicksilver test. and which with the, you know, he has a try test, which does include urine, hair and blood.

What I like about Chris's approach is that that. Well, we'll now tell you. Are you a good excrete or. It will tell you. Is this mostly organic? You probably got it from seafood.

Is this mostly inorganic? You probably got it from dental amalgams or things like that. and again, as you lose your ability to excrete this, now you do more and more poorly.

as this now starts to build up, which is why I like to look at things like, you know, how how good are you with detox, right. And we and of course, as functional medicine practitioners, we're looking at the phase one, phase two pathways all the time in these patients because some of my patients, their detox pathways are just basically overwhelmed.

And, you know, they come in with low serum glutathione levels. they need a lot of NAC supplementation. I mean, clearly they need help. So, you know what I find interesting and the reason I'd love at some point we've talked about collaborating is, you know, when I started doing my research on Alzheimer's or neurodegenerative and I looked up the drugs I'm using in the daptone protocol, it was like tetracyclines, lower amyloid beta.

It's like, oh, I didn't know that. Rifampin lowers amyloid beta. It's like, oh, on decrease amyloid deposition, methylene blue decrease increases tau degradation, and amyloid beta levels like hold on here lot.

This stuff that I'm using for someone for Lyme is affecting amyloid. And I mean, I didn't even know it until I started diving into the literature. This is why I think, in people who are established, right, who already have it, where we know they have tick borne, I think it's going to be really fascinating to do a some trial on these people to find out, even if they've got, you know, some of the damage that's already there.

Can we at least get them to a more functional status? Right. Because of how bad it gets towards the end of the illness? Yeah, exactly. And, you know, the same thing could be said for curcumin.

That's another one that lowers, cats claws. Another good one that lowers this ginger. You know, why do these things do it? Because they are either anti-inflammatory or they're actually getting rid of things that are that are inflammatory.

So one way or another, this all fits together. And this is what I love about functional medicine. It actually makes sense. It there's internal consistency.

It doesn't say you know, you tripped over something in a protein misfolded in there. And it it killed you. you know, that's not the way physiology works.

These things are not there to kill you. They're there because they're trying to help you. They're trying to respond to an insult that you had. And unfortunately, of course, we're living in a world that's full of insults.

from, you know, from the way we build buildings with mold, food, to the way we, you know, go out in the woods, get ticks on us and don't realize we've got this and, you know, don't bother to check while we're getting all these symptoms.

So, that's why I love your ballad of the Deer Tick. that's I still I still smile about that every time I think about it. It's great. Yeah. No, I'm glad you enjoyed it. So.

So for you to to do prevention, I'm. You're probably doing what I'm doing. I mean, I'm on my treadmill literally seven days a week and a 12% incline. I get to sleep, I do the clock.

I've got my diet as good as I can. I'm. I have the gene. Unfortunately, a little bit, so I have to be careful with my noshing. but yeah, I take I do take LDN.

Prevention, screening, and future collaboration

I block enough Kappa B with NAC glutathione on Alpha lipoic acid, which helps with insulin resistance. I take hookworm and I take broccoli seed extract, I take resveratrol.

so are you doing a lot of these things? And is there enough, like with the Framingham study they did years ago, looking at, you know, all these nurses, do we have any evidence at this point for people like me that are swallowing a lot of things and take really trying to stay alive on the planet as good as health as possible, that we will live longer and maybe not get dementia.

Alzheimer's and neurodegenerative is do we have any long term studies at this point or you know. Yeah, long these long term studies take a long term as as you well know.

and so the I'd say that the best data we have to say that the when these things that you're dealing with are risk factors. So, yes, for example, you look at the finger study that that's one that that looked, at just for things.

It's just some basics like dealing with some vascular parameters, very, very helpful to people. but no, you're right. There's no perfect, you know, Framingham study yet to say, we, you know, we don't.

If you take this, you won't get it. What we can say is, I would say, you know, some of the better ones, like the rush study. Rush is doing a great job in Chicago, with, with, you know, many, many, many, many different brain autopsies looking at all, you know, what's happened, what gives you more likely, less likely to have problems.

And there have been several papers published on looking at some of these different things, looking, for example, at orthostatic hypotension turned out to be one of the risk factors.

of course, poor sleep, of course. Things like smoking to me. This is why having an accurate theory of what's going on is so valuable and important, because that tells us you don't have to do a zillion experiments.

You can pretty much predict, and then you can. And if you want to show that with experimentation, great. But you can pretty much show these are the things that give you the very things that your brain is responding to to give you Alzheimer's.

So yes, if you don't perfused your brain, that's not a good thing. If you've got chronic inflammation, that's not a good thing. If you've got a horrible sleep, that's the sort of things that you were talking about.

And that is why, you know, I do believe in things like curcumin and cats claw. and, and, and you know, getting exercise every day. It's remarkable what exercise does does for you.

And where we really see it is in people who jump on it. What exercise therapy, have gotten some very, very nice results. and. You know, and I think the numbers you're quoting on Alzheimer's are not generous with because you were talking about hyper perfusion.

the Lyme patient population, we're seeing at least 40% of our patients now getting pots, dysautonomia with low blood pressure. Oh, we know that Long-Covid, of course, is causing it and is like, you know, 50 million people worldwide.

I so I mean, really we're talking about huge numbers of people now that, may be hypo producing at this point. And we have people do sitting and standing blood pressure and pulse rates to to show it people. No.

You know, I stand up, I get dizzy, I couple, I feel like I'm going to pass out. I do pass out. I mean there's certain clinical clues. but that sounds like it's even going to be an overlapping risk factor we may not have had years ago because of both long Covid and chronic Lyme, both crossing pots and low pressure with low perfusion these days.

And what's the biochemistry? Why are so many people getting pots? The best? I've been able to come up with, with both long-covid and chronic Lyme, is what I describe it as the three eyes that infection, immune dysfunction, inflammation.

So whether the infection is Borrelia burgdorferi or the infection was Covid 19, it's basically causing an inflammatory response with immune dysfunction.

And what happens is the autonomic nervous system. with neuropathy you get an autonomic neuropathy. In Lyme, you get an autonomic neuropathy with long Covid from the inflammatory response affecting the vagus nerve and and affecting that part of your body.

So it's it's infection inflammation and immune dysfunction. Just the infection is different. But the mainstream effects seem to be the same. That's the best I've been able to come up with is to why so many people are getting it.

You know, this is so interesting to me because, you know, when I was training many, many years ago, there was a disease called shy Drager disease. I'm sure you remember this.

Part of Parkinson's where they would pass out. And it's an autonomic dysfunction. And you can get it with the Parkinson's or without the Parkinson's. And this is now called multiple system atrophy.

And I you know, I really think again, nobody knows what causes multiple system atrophy. It's a horrible disease. And I think that's it's likely it's going to turn about to be just the things you're talking about.

It's borne things and it's, you know, infections and long Covid and things like that that are damaging this autonomic response. Yeah. And and the one that I in our practice that is really coming to light in the last decade is Bartonella, which you and I were just talking earlier, like you're starting to find it in occasional people.

If you think Lyme has been a stealth pathogen, this one's even worse because there's at least 17 pathogenic species. You can't get a regular test. You can't just rely on Bartonella. Hensleigh.

Bartonella cuentan, a Bartonella maxilla form, is from your lab corps. You need specialized laboratories with fish testing or direct droplet PCR from Galaxy, or from my Gen-X or from Teela.

Very specialized labs. And I will tell you because they're not sure if it's tick transmitted. There was only one study in Europe in Ixodes. Reisen has ticks that transmitted Bartonella Berta lisi, a specific species.

But almost every Lyme patient now that's coming in is being exposed to Bartonella. And it's an intracellular chronic pathogen driving inflammation, causing the same symptoms as Lyme and causing cognitive dysfunction.

So, you know, even the question becomes and you know, the people you're seeing, I and I'd love to look of course, at how you're doing the screenings. And maybe you and I can collaborate on this.

I would love to find out in some of your resistant patients that are not responding to the mine diet. And, you know, to all these great things that you have published in your New York Times bestselling book.

And by the way, please let people know they really do need to just give them a quick if you're you're allowed to do a quick, promotion here. Just tell people about your book because they really do need to read it.

Yeah. So I've written three books now, the end of Alzheimer's, so named by the publisher, actually, the end of Alzheimer's program because people said, well, we want more details on the program.

And then the third one, which was called the First Survivors of Alzheimer's and just what, seven wonderful stories from people who were all told they were going to die.

They all did great. They're still doing great. and they wrote I asked them to write their own stories, and it's just, if you can get through that without getting a little choked up, you're a stronger man that I, I could I.

I just interviewed 18 people with some combination therapy. and, we've got this will be shown during the healing from Lyme summit, and I got to tell you the stories also.

They're amazing. They give hope. Just like your program is giving hope to people that this is not necessarily a death sentence. And, you know, down a certain road, it's the same thing with Daptone.

We're finding that we really do have answers for people. and it's so fascinating that you and I have been working at this from opposite ends. You're coming at it obviously from the brain.

I'm coming at it from, you know, my perspective. But we both came up with exactly the same conclusions of multi systemic, different forms of inflammation driving downstream effects with basically infections, immune dysfunction, inflammation right.

Causing the same problems. Whether it's the brain or the heart or the bones, the joints, whatever I'm seeing in Lyme. But but getting back to Bart, I think it's going to be one of these things you're going to find when you start looking at some of these resistant patients, you may be actually surprised.

it'd be good clinically to check out some of your patients if they've got these stretchmarks, these classic striae that are now starting to show up. It's in mostly the people with neuropsychiatric symptoms.

but more and more, when I'm doing a full physical and I'm looking, they're either perpendicular to the skin planes, or horizontal, but, they almost look like you gained and lost weight.

They are a clinical sign of Bart, just like any, rash would be a sign up of Lyme. so, you know, with markers like vascular endothelial growth factor, which, you know, Covid also can stimulate.

Although when I spoke to Bruce Patterson, I said to Bruce, how do you know, though, the virus is actually not stimulating an underlying barred infection from reactivating in some of these people because, you know, he's looking at CCL five and all these TNF alpha and all these inflammatory markers, PGF is one of them.

It's showing up in long Covid, but it's the one we use for Bart. And I'm kind of wondering if you start looking at, you know, some of your Alzheimer's population, it might really be interesting to see in the ones that don't respond.

So all this great stuff that you know, you're doing, maybe Bart, you know, is going to be one of these underlying factors. That's what we're finding in our practice right now.

You know, and I would guess that that's one that's completely under tested for, as you pointed out, virtually impossible to get all the, you know, to have the right tests for this. Yeah.

I would be so and by the way, let me tell you a quick story. We had a person with posterior cortical atrophy, which is 5 to 10% of Alzheimer's presents with this visual, analysis problem, visual perception problems.

This is a bit of a patient who worked with a wonderful health coach in New York, Kerry Mills Rutland, who works with me. And so we we routinely go over various, patients.

And, this person could not read anymore, could not use the computer. and this person ended up couldn't, you know, couldn't do any of the brain training or any of that stuff.

you got to got on the right program, started doing better, and it turned out she had as one, one of three major things. Bartonella. She had some unusual leg pain.

Interestingly, and she actually, consulted with Dr. Neil Nathan, your colleague and friend. and she was treated for this, and now she is using the computer.

She is reading once again. she's doing brain training again. And her MRI, her parietal lobe volume went from 0.5% less than one percentile to the 22nd percentile.

So just striking improvements, in her MRI over a year. Just treated just treating the infection with Bartonella. Treat well she so she was on the whole protocol but oh okay.

Treatment of that. So she was, you know, doing all the right things to, to get that supply up and the demand down.

And she's done very well. so, you know, again, Bartonella, you're right.

I think it's way more is out there more than we realize. Yeah, yeah, we believe it or not, we've just reached that. I feel like I could be stag on the phone.

Honestly, the zoom calls with you for hours because you and I have so much to discuss on this, but I look forward to really a a collab. I think it'll be fascinating.

Any of the boards you need me on to take a look at the trials? Help with it. I am more than happy to help out because, you know, at this stage in my career, just like you, when I'm doing one on one.

But I think we're here to benefit the larger population of the people who really need us because of the dire situation the world is in with these neurocognitive deficits.

So, congratulations on all the great work you're doing. And, it's it's really been a great pleasure to speak to you. So just before we come off one more time, how do people get in touch with you and take that CQ test? Just tell them again.

best way to. Just go to my c So mycqtest.com My CQ test (apollohealthco.com/know-your-cq/) Easy to do. You can go to drbredesen.com you can follow up Facebook Dr. Dale Bredesen Twitter the usual x I mean, you know, now that that's changed, the usual sort of sorts of channels, and, you know, take the test, see where you stand.

it's an easy thing to do. And then please, if you are 40 or over, get a cognoscopy, get on active prevention so that we can all reduce the global burden of dementia.

So I have not used the word cognoscopy in my lexicon before vocabulary up until now. But I think my lexicon is about I love that word, of getting it. So it's it's wonderful.

It's definitely being added in. So, Dale, thank you so much for taking the time today. for those of you who've been tuning in, my name is Dr. Richard Horowitz.

I'm co-host of the healing from Lyme Summit. We've just had an amazing talk protecting Dale Bredesen. Dale, thank you for all the work you're doing. I look forward to us collaborating in the future and and just keep up the great work.

And you as well. Thank you very much, Richard. Take care. My Pleasure. Good seeing you. Good seeing you. Bye bye.