Introduction to NeuroQuant and Mold Brain Effects

Welcome to another edition of Mycotoxins and Chronic Illness. This is 2.0. We're back speaking again to, Doctor Mary. Accurately. Mary is a, a hero of mine.

She's somebody who, has, really keeps finding new ways to look at the world and also has really been helpful in spreading the word. She is, a co-founder and first president of the, Eisai International Society of, Environmentally Associated Illnesses.

I think I got that whole acronym right. Did. And, she is a, a psychiatrist. But, today we're going to talk about, the other part of her degree, which is we're going to talk a little bit about neurology and, one of the imaging, modalities that I have found to be very helpful in giving people, an idea or actually literally a picture of what's going on in their brains.

So, doctor, actually, and I talked last time a lot about mold and mycotoxins, and I'm sure we're going to touch about that today as well. In fact, in the introduction, just to, it's nice to I think there's one story that you tell, about maybe your first mobile patient, as you say, it was a lucky one, but it really set the tone for beginning to understand how profound mycotoxins are and their effect on the brain.

So, doctor, actually, tell us about you a little bit, and then we'll go on to the neural client. Okay. So thank you for having me back here again and talking about the neuro quant.

I think you've described really my interest in neuroscience. I've been doing them like you, since at least 2013, 2014. They've gone through at least three major iterations.

And at some point, they gave so much information about the brain, I found them more interesting than any other test I was doing. So I have focused a fair amount of attention on them.

So I just like to share that passion and also help people understand how much information is gained when you have a chronic, complex illness. From looking at the brain directly and not guessing at what's going on from symptoms.

So, my brain doesn't work like it used to. Pretty much every old patient is going to tell you that, we were just talking about my first patient. Eric had asked me, why did you, you know, get into mold, and I've sold the story before, but it was, a patient who had been seeing for a couple of years for hormones and some depression.

Anxiety who, came very late to an appointment. She was lost. We actually had to get her on the phone. And director back, and she's coming. For two years, she was only 70, and she should have been able to find a way again.

When she got here. She was just so disheveled and distraught and not remembering, you know, her pocketbook or why she even came to the appointment and asked her what was going on.

She said her home was being renovated and they had opened up the ceiling. You know, in her bedroom and were renovating, found a lot of mold, and she was living underneath it.

Now we guessed, okay, 12 years later, how you couldn't possibly do that. But at that time, the I, you know, one doctor in Arizona considered mold, you know, a bad thing.

And I sort of knew about it and she the patient and certainly the people doing it had no idea that that was horrendous. So she was there every night breathing in the mold.

If the workman left and had never related that. But I did because I knew that mold could be toxic and I had no idea what else to do. We read shoemaker's book, surviving whatever book it was.

He had symptoms, and she remembered saying, I sit there, I speak headaches, and she said, oh my God, yes, you know. And she clearly had, you know, her cognitive issues looked like dementia.

So really did think about calling her son. So I read the treatment was call list. I mean that seemed pretty safe. And again, not knowing much. I put around four packs of polystyrene a day and she tolerated well.

And three weeks later she came back, knew her way to the office and looked like herself again. I said, well, I cured dementia. Okay, so that was really impressive.

And again, that was lucky, you know, because that doesn't happen that often for everyone listening. But for that one, it did. And I did tell her, look, why don't you just go stay in a different house?

Because it doesn't seem good to me to have mold kind of drifting on your body as you're sitting there sleeping. Remember, it's 12 years ago. A different world, very different world. So the most common mold brain complaints that I've seen, because I'll go through my records and look, it's going to be anxiety, and it's always, you know, it's everyone is anxious to some extent these days we find distress and you're not really sure what's going on.

And insomnia and insomnia is a little more worrisome because most people have busy schedules, need to get up and know every night they're not sleeping, they're not having a good, productive day.

So these things are bothersome. The brain fog is when worry starts to sit in, is when you notice that your brain just is not processing. You hear things and you know you should respond, but you're not sure exactly what to say.

And it's going so slowly. People are looking at you. I always call this like just having one bar reception on your cell phone. It's working, but it's coming in really slowly.

You don't hear all of it. And then when you talk, what's coming out is not really exactly what you mean to say. It's just a good description for brain fog.

That's where people do get worried. Then we start getting to the cognitive impairment with lack of focus and word finding issues. That's even more worrisome.

And then we have, you know, people are noticing they're easily stressed. The resilience isn't there that small things have really, you know, bothered them tremendously and they lose it.

And I think, you know, the word mold rage is something I came up with after having watched the married couple sit in front of me and it was like, whoa, this is bad.

And then watch. When they got treated in clean houses, it all disappeared. And luckily they had less memory of it than I did. So, you know, the whole rage, the irritability, is real.

And most people have had will tell you they just lose their reason and ability to hold it in, depression. And again, it's, it's there's always a reason to be depressed, but it's it's not being treated easily.

And these are the patients who you try things like someone yesterday had transcranial for his depression and he went through 40 treatments. And the guy kept telling him, oh, you're going to get better.

Everyone gets better. But he kept getting worse and worse. And again, it's one of these gaslighting things with the doctors just don't believe they're seeing that a person's not responding to a treatment.

Most people do. And then there's the usual lack of libido and poor motivation.

The First Mold Case and Common Brain Symptoms

So you put all that together of you're now going to have to solve getting out of mold and you don't have much motivation. You're angry at everybody, and anyone else in the house is angry at you and you're, you know, easily stressed.

And it makes it very difficult situation for everybody. So you can see how lucky I was on the first try. She had another house to go to, wasn't a big deal and just got out.

Yeah. And I always say that that's God, God's way of telling you that this is what you should be doing when you get those first cases that they work well, was it was a dramatic impression, because I certainly have treated dementia throughout my career.

As a psychiatrist, you certainly see many people with cognitive issues. And to clean it up that fast after called the sons get is just like, wow, that's impressive.

And I had a couple more after that to who, you know, with neurological and with the mess who again, when we figured it out and all these neurological symptoms started melting away.

It's like very impressive because you know, that's not supposed to happen. So a neuro quant is something you know it's been around since actually I think 2008, 2009 I started using it.

So did Eric I think about 213 2013. It's volumetric imaging. Simply meaning it's taking, you know, space, you know, measuring the space that each region of the brain takes up and it takes these 2D segmented images, uses an algorithm, and calculates their volume.

It was originally used to diagnose Alzheimer's. It's being used to use for Mis. Now, and you can use it to assess traumatic brain injury. Those are fairly conventional uses of it.

So I'm going to go through things quickly. A lot of people watching this may have had neuro quants done. They have data. They're really not quite sure what it means.

And I'm going to try and give you, some easy ways to look at it and then some real reasons why you should have hope, because brains do get better and you can document it.

And that's probably the one most important things this test does. And you also, you're going to have a lot more reason to, understand what's going on.

And we can tailor treatments more when we see are you fitting into neuroinflammation or neurodegeneration? So Alzheimer's is neurodegenerative. The case I'm about to show is, you know, a seven year old woman, which is really not old, especially as I get older.

It's like, whoa, she really old? And and she and her son had been through, you know, a remediation also where the kitchen ceiling had collapsed with mold and mold throughout the home.

So they knew they had mold and they both were suffering, you know, many symptoms, which at this point, they knew she had had a heart attack and a lot of pulmonary issues like six months later, the son, was very depressed with OCD, and both of them had a lot of fatigue and poor motivation.

They both were complaining of, difficulties with their speech where they would use the wrong word. It was similar. It was close, but it wasn't the right word.

Which is usually specific neurological. Like, would you drop telling me that? And they were both doing it? I didn't think anything of it. Again to 70.

It's not you know, and she seemed fairly intact and I'm pretty good at picking things up. But that was her neuro quant came back I, you know, and so, I'm someone with a lot of experience and I missed it, and I think many people I know, every other doctor and her son had missed it is pretty much this showed what we called well see of red.

Okay. Easy to see. And you're seeing here what we call the 99 one pattern, the ventricles, which are the part of the brain, carrying the cerebral spinal fluid.

They're very big here. They're in the 99th percentile for age and sex. They're very big in the hippocampus, which is the memory center is in the first percentile.

That is Alzheimer's. It's going to be the earlier stages, you know, mini mental or that point may be 25 or so. But it's there. And when she saw that, she knew immediately she had a family history of Alzheimer's. She'd seen it.

And it was a very emotional meeting. So this is Alzheimer's, and you pick it up, and this is still useful. Okay? This is difficult. This is not my favorite thing to have to do when I get about one every three months.

Now, but you have a a there are lots of things you can do. The Peterson protocol is what we call it to make things better cognitively, to also prepare to understand what's going on.

And we did do some things, and I think that that's, that's going to be, the next slide there is the, let me just find what just happened. Is, okay, so the we have the sea of red and the ventricles are having a problem, and I'm just showing you again here with the ventricles are, are going into being very large.

Oh, so the, I mean, I'm not sure. And you can see here what the pattern looks like, in. The, in that's really fairly exaggerated here. And. Very quickly, in neuroanatomy, we're just trying to, show you, not teach you neuroanatomy, but just say there is some way, some developmental ways to understand, why the brain is why the brain is, There. That's what I want.

Why is the brain, developing? And we have certain needs which anyone who studied psychology does know. Is we have a very basic need for water, food, air and water safety.

It's physiological. Everyone needs that. And it's the basic need. And the brain is going to help you deal with all of that. Then we have a need for safety, security, which is really, really important.

And the brain is going to need all of this. It's the needs that every human needs. And then as you develop, we get into belonging. It's the tribe. And it's a place where a lot of people are right now is just wanting a tribe, wanting loved one in connection.

And the brain has a part of the brain that does that. And then again, as we get into the higher functions and the newer functions of the brain, we have self esteem and we have with our self and others.

And then we have what's called self-actualization. It's creativity, it's logic, it's math. Problem solving and presumably ethics are in the highest part of our brain.

But that is considered where they, they respond. So understanding that triangle actually helps you when you're looking at the brain is you can see and again, everyone will say, but there's this, it could be a little bit finer, but basically we have a brain stem.

And this is where we're really looking at our physiological needs. It's where your, you know, nerves that your cranial nerves that work with your heart, with breathing, with temperature are all going to be located in the brainstem.

And your vagal nerve, which is going to have a lot to do with safety here. And we talk a lot about the vagal nerve these days as to why this is where you feel and how big that need for safety is.

At a very basic level, in the body. And then we have the limbic system, which is your emotional brain. And we talk a lot about that, how out of whack that gets especially involved.

But that is your need for love, belonging, sense of tribe. And when you're not feeling the sense of safety, it's going to really disrupt this ability to sort of be loved, belonging, finding tribe.

You usually going to be in panic and anxiety and seeing danger everywhere. And then we get to the higher parts, our cortex, our thinking part of the brain.

And that's where there is, you know, esteem in the self of consciousness here in the parietal. And then we get to self-actualization again with the logic, math.

And some of the finer things that we consider distinguishes this. We consider as humans distinguish us from animals. So understanding that and again this just to help everyone understand what are you looking at in neuro quant.

Why are we talking about limbic dysregulation is the brain's structure is again our limbic system is interestingly the hippocampus which I just told you is memory.

But it's emotional memory. And we have here the famous amygdala, which most people know that, their middle lives are their fear centers. And most people have felt that sense of fear when the amygdala is really running the show, and you're not going to do anything else than try and satisfy that fear, you know, just dampen it in some way.

It's it's so unpleasant. And we have the caudate and the, this is the limbic system that we're talking about and what we're going to be looking at, at the brain.

We also have the thalamus here, which is very important. And part of it to. So our thalamus is the Grand Central Station really for sensitivity, for pain, for all sensations.

We're going to go into thalamus. That's so pain. All the sensations, coming from pain in your body goes through the thalamus. Smell is going to go into thalamus.

Site hearing, taste, touch. And we're going to see a lot of very over activate the thalamus is here. And you can begin to understand why with more of this really common, people become very sensitive to light and sound.

I'll usually say, well, so you're in a car together.

How NeuroQuant Works and Brain Region Basics

And so in terms of music, does an illicit patient, you know, do you usually just turn it down or matically? And if it's a family, they're all looking at each other like, yep, mom turns it down like that, you know, because it's so painful.

It's it's the thalamus. And when that's dysregulated, you're really going to have the somatic hypervigilance. And again, almost in muscle, we see in the 90th percentile all the time.

And usually 99. And this is say to mast cells. It's a known side of mast cells. So when we start talking about mast cells in the brain and the mast cells activating, they're going to be making the thalamus even more sensitive to smell, sound.

And it's right there. And so the amygdala, the other really famous part that we can again look at the t bar, is it's the fire alarm. It's going to be noticing, notifying the rest of the body.

There's a problem here. And the, regulates this perception. Perception is the key word of danger versus safety. It's perceptual. And this is fight and flight right there. So next case is and we're getting into kind of complex cases because in some ways Alzheimer's which is neurodegeneration is simple.

Everything is is not working. It's smaller than it should be. It's degenerated. Traumatic brain injuries is another thing that it's fairly easy to pick up on a neuro client.

And that's useful because that does change the brain. And many people have no idea, especially from my generation. Yours, Eric, that that falling off the monkey bars when you were three would, would be considered a brain injury.

And, no, because, you know, you got up and walked. It was okay. There was no such things as concussion watch. And in fact, I think I've learned the best way for me to still get a TBI history is to have Mon next to the patient, because a lot of people just minimize the fact that they've, you know, gone unconscious, got knocked on the head, had blows to it because people didn't make a big deal.

So there are alarm signals never going off. But if you have mom there, she remembers every time she messed up, basically because that's what she considers it.

So and it's very helpful. Because you can see it here. This is what we call ventricular asymmetry. And remember I just showed you very big ventricles here.

They're a little bit smaller, but they're the black ones. So you're always going to show up black on a neuro quant. And you can see something called ventricular asymmetry.

The size is different. And that is because, they are they're going to be the softest part of the brain. A forceful impact is just going to change them.

Easiest when the impact goes through the brain. So you can look for this asymmetry. We can find it in in the ventricles first. And again when we're seeing it here, she's at like 41% and said people at 60% and stuff.

You know that these, injuries she's had, she was an ice skater. The next person she's been in a motor vehicle accident, which was considered minor but didn't, and she had a concussion to, has made a real change in her brain.

And again, this is what the ventricles look like. These are, the inferior and superior, and then the third ventricle. And then you're going to have the fourth ventricle going down.

So this is our next one. We're going to get into, see a blue, which is quite a complex and just really easy. You look at a traumatic brain, you look at a T bar, which is going to show us these 50 regions.

And you're looking at mostly blue or mostly red. You know, it's not going to be too hard to figure out neuroinflammation versus, neurodegeneration. And in this person, again we're looking at inflammation here, a major inflammation.

She's in the 99th percentile, I think in her white matter in the limbic system, which will come back to her cortical gray, and even her basal ganglia is mostly nucleus accumbens, which is the pleasure center.

And it's kind of interesting because she did have some drug issues, too. It is the pleasure center, but it's considered a reward center and studied in drug addiction.

So all of that's here. Okay. But I look at this and it's like her behaviors, pretty much which has a lot to do with depression, panic, and suicidal ideation can be understood as inflammatory.

And the reason that TBI is, useful is that when you hit your head, you're going to open your blood brain barrier, and that's going to allow toxins to penetrate more easily.

That's a big one. And the other thing is repetitive injury is going to be leading to repetitive damage to some of these brain regions, which we now call post concussive syndrome.

We see it in football. I've seen it in soccer players, especially female, is where people have been using their head in ways that probably shouldn't be used and getting damage they didn't understand.

And so when you're seeing some of these cognitive issues, it's not all old. And it's important to know that. So again, this is just to understand the limbic system because it's the crux of a lot of old issues is you have basically you have a spark, you have some sources of anger.

Just something has happened which is disappointed. The person. And feeling rejection, feeling fear, it just lights. It's the spark. It lights that whole system we've just talked about. Bam!

Now you have a little brain on fire in these systems that are blue. Easiest way to understand why you're seeing when you see the sea of blue. You know, have a person you're looking at, you're going to have to be talking about limbic dysregulation.

And again, and this goes into physical reactions which make a lot of things worse, especially your mast cells. Basically it's going to be sending substances the act from the brain into the adrenals.

The adrenals are then going to be releasing your stress hormones and your stress hormones. And I'm going to be playing havoc all over. But again, it's a major activator for mast cells.

And the mast cells are sitting there in the microglia, in the amygdala, in the thalamus and they're just getting more on fire and more inflamed. And that's really our task is to quiet that down.

And I think I think you'd agree at this point that for a number of patients, they've become so reactive their their stress hormones go up so fast just by seeing a food that they know is going to make them feel bad, that you have to quiet.

You have to break this loop in multiple ways before the body's going to accept any treatment, that they don't see as dangerous. Yeah. But that that is, I think that the most frustrating, place for the patient and physician is, when people reach that point where any change is read as danger, whether it's good or bad, it doesn't matter what it is.

If it's different, we're going to bite. We're going to bite. Bite it. Right. So, and there's more things here than boldness. I just the cytokines can be from multiple sources.

Lyme is certainly going to be doing this as well as mold, mast cells, you know, any of the autoimmune diseases, they're all going to be increasing Covid, setting of multiple cytokines and, those are going to be a real trigger.

Histamine is an enormous trigger for the brain, and can be coming from the gut, from people who can't metabolize, you know, histamine in the gut and the mast cells.

And again, that's going to be activating the amygdala, which they get hard. I says he's very sure there are cells in the middle. And that's kind of fearsome actually.

It's like so the amygdala is already the fear center in you're having mast cell issues and they're triggering is the histamine that's now triggering the the amygdala to it's not even your sense of danger.

It's it's it's a complicated issue that can be can be helped. But I think a lot of people are locked into it and feeling fairly helpless about it. And then just endotoxin is again coming from the gut.

So we talk a lot about the gut. And one of the reasons it's important is it is sending things like endotoxins and histamines going to the brain very fast, getting through the blood brain barrier and setting off more fire.

And it's kind of what people mean. I think when they say they're reacting to food or to supplements is their gut is sending signals really fast. So this is going to be the crux of the brain retraining programs we often recommend is once you get this limbic activation here with the thalamus, and the hippocampus ending amygdala, you get a sense

of looping, where the fear activates the brain, which then sends more of the fear signals, which then sends more activation.

You get these increased glucocorticoids and catecholamines that really are very important. Cell triggers, in fact, might be the most important medicine triggers we have.

You get this whole fight and flight reaction, which is completely physiological. We're mammals. Okay. Remember that brain I told you like two thirds of it really was mammalian.

Okay, we're not different. We're the same as the tiger who's being pursued or the cat. And we have ways of reacting and fight and flight is the first when we you either are ready to fight or you're just fleeing.

And we see that mode a lot, where people are angry or fighting or they're fleeing. They're out of the house before you've even said and, you know, leaving, leaving things behind and not making great decisions.

It's really well known in the state. You don't make good decisions and you don't heal. And that's the reason we keep saying, you know, we have to calm it down, have to get you in bagel tone.

Will you rest in digest? Because in the sympathetic state, you're really just making a mess. And for most of us, you've been doing this for a while. We're really interested. How do we help these patients?

We're going on three years, five years or much longer that are not getting better. And they've had every reasonable treatment that you can imagine. It's the vagal tone and this whole dysfunction here.

So that's a very short course in limbic dysfunction and brain dysfunction. But you can see from the brains I show you that that it's, it's just really common.

And can your brain recover from mold is the question most people listening want to know. And yes. So try to pick some things here where I can show you that brains have recovered.

And it took me a little time to point this out because, part of me thought, well, I'm not sure that the gray matter things that are red are going to really recovered.

I started looking through some of my stuff and saying, these people are better in the gray matter. It really got better. And I thought that didn't happen.

And that's because I was confusing. I think a neurodegenerative process like Alzheimer's, which is harder to reverse from things neurodegeneration, we may see in something like mold or line, which just seems easier.

So let me show you some of these.

Alzheimeru2019s Pattern and Limbic System Overview

This was a person who, was, you know, pursuing mold avoidance, fairly straightforward mold avoidance. Had done when she came to see me, multiple treatments, including something we called the PK protocol, mast cells.

This was her first neuro quant. And you can see that there's inflammation and there is red two here. Her cortical gray was 38%, which I don't really like.

You know I'd rather see cortical graves above the 50th percentile. And her pallidum was in the first percentile. But she had all the major white matter, inflammation, the neuroinflammation, the brain fog, the thalamus, 99th percentile.

And you can understand how sensitive she was to many, many toxins or feelings of toxins that kept her on the move, avoiding them and the hippocampus again, also, very activated.

And her amygdala wasn't quite as bad as it could be, but together she was, you know, pretty much in fight or flight. And then again, with this month of treatments and moving is we did a second one.

And you can see right here this looks better just in an eyeball ING it. Okay. We have less blue and we actually have less red. This is already a win. And although she would tell you she's not much better, I would say I would have said, you know, she was more stable and seemed to not be so sick and for so long.

But you can see here her white, her white matter, which is the myelinated, your myelin in your brain, which is carrying messages from different parts of the brain.

It's gone down to the 80s, 61st percentile. The white matter is in the 79 fifth percentile. The hippocampus has come down to a more normal number, 78th percentile.

The thalamus has actually improved, which is major, because if you just listen to what I'm saying is you have this amplifier in your brain and the smallest amount of danger is so amplified that life is very unpleasant and it's hard to get a sense of what's real.

You can see how major this victory is in the amygdala is also a little bit smaller. And a cortical gray had gone up to 78th percentile. That's lovely.

Okay. That's like, you know, the brain is looking much more normal and not going down on gray matter. Gray matter is what you think with that's the told you that higher forebrain that we all want.

And I know this is one of the things I'm showing you is this is so useful is, the parents who were financing this when they saw this difference. I remember the mother just crying and crying because at that point, they had really given up that this was going to get better.

And they could see that the difference these treatments were making and it helped them continue going on with treatments, is seeing that there was improvement.

So it's one of the stories and I do have more than this, but I like to show that is just, you know, things get better from all of this. And again, just gray matter.

Just because I keep talking about it, it's the icing right here on the brain. But it's only, you know, it's only like 6% of the brain, uses what, 98% or 90% of the brain's oxygen.

That's so important to remember that because we have multiple ways. We know now, CCI, with Eric and I like to talk about, parts, lack of exercise and wages.

Oxygen doesn't get to the, the full cerebral cortex. And being able to restore blood flow and oxygen is what I think leads to such good improvements we see in gray matter.

And then this is the white matter. It's kind of your inner telephone wires here that take signals from one part of the brain to another part. This is usually very inflamed.

You're seeing these 99%. And I think this is where we really see brain fog is we have slowed processing. These wires are kind of on the Fritz. They're not moving material information efficiently.

And it feels people say it's like it's wool. It's fuzzy. And my brain is it's the inflammation there, of knowing kind of what's going on. And it's just it's slower than you'd like.

So we see a lot of that. And again, I just showed you improvement. And again, here's the more of the white matter. And this is also going to be where we're looking at the micro glial activation in is going to be this hallmark of blue.

Is the Michael clear as is the layers that line the brain. That's what's activated. That's synonym miss actually with

neuroinflammation. So. This is, another case of a, 21 year old male.

And he was eds part sirs, autoimmune, probably some more diagnosis we can put in there. I'm pretty sure he had Bartonella. And when it came to me, he was 90% bedridden with the parts.

And this is severe parts when standing up is very, very difficult because the blood pressure is so low. The heart rate's so fast and there's a weakness.

And they did. The family really didn't know what was going on. They didn't really even understand because they were all kind of bendy. The whole family understand that this was not normal.

And, you know, and they didn't they hadn't gotten very effective help. It was they were in the Army, which is like this is I got to tell you, beyond Army ability to understand a 21 year old male who's in bed and has low blood pressure and, is bending, and they're not looking for that at all.

So he hadn't got much help. So in the first year, you can see we're seeing here, really things here that were in the red, the occipital lobes, which is your, where you see from it's part of the vision is 21 percentile.

You're seeing the motor, which again, he's not doing much motor movement. The right side is in the 12th percentile and the middle temples are here down.

And that has a lot to do with mood down the 28th percentile. So they're there. And he is showing some some blue. But that was 2017. And his cortical gray was 48%.

This was after a year of actually getting him upright and walking is we showed this kind of improve. We actually showed a more true mode picture, which is probably really what was his biggest problem mode.

But by getting him walking in Envision Therapy, and movement, we got rid of the red and everything else is his cortical grades. And now in the 95th percentile, pallidum is actually looking the 40th percentile.

The primary mode is going up to 71st percentile. That's lovely because you really don't want to see degeneration in your motor neurons. And again, Eric, you're nodding your head because you're like, that's not what I was taught.

You taught the gray matter goes, you're done. You're fine. Yeah, yeah yeah. Right. And I had the same bias and it took me a while to actually look at these and say, oh, it's not just I can understand the blue going down.

So it's like a sponge. We're squeezing it out. No one told me that couldn't happen. But I've been told my whole life that, you know, gray matter when you lose it, you know, that's that's you're in trouble.

And I'm showing you not is and supplying oxygen doesn't just mean hyperbaric. It means getting people up, walking, moving, getting blood flow with people who have low blood pressure and, getting some exercise going. So this is another, you know, and you would say, look at this.

And this is fairly miraculous. Now it's like I'm showing now your inflammation, neuroinflammation. But yes, now we can see the old picture, but we have your brain working at a much better level.

Because you do not want more red. I showed you the worst case first scenario. That one is hard. To to reverse. And then this is less what I'm going to show.

And again, this is, 65 year old, you know, and again, we consider that slightly elderly now, you know, you know, I wouldn't think he thought so. He's an executive.

And he was though feeling he had mild cognitive issues. He just really knew he wasn't the sharpest used to be. And sirs had been diagnosed. Lyme had been thought about.

So this is again, these were, done by somebody who sent them to me because a lot of times now I will be consulting for people who get these and are, I'm quite sure, what they're seeing.

We also can run software to show improvements a little more easily than eyeballing it. And in 2020, you can see again, more red than you'd want to see.

His cortical gray was the 22nd percentile. Where I do get worried. And when I see that that number I'm usually thinking there's Lyme or infection going on is unless it's some severe case, it's that's I come to that conclusion that that's the most common cause.

Just mold doesn't bring it down there, but infection does. Is temporal lobes. You know, that's like your mood regulation has a lot to do with hearing.

It's in the third percentile. That does not look good. And the to Reinoehl was the 11th percentile. The interval is that deteriorates is considered pre Alzheimer's.

It's linked to smell. And we know smell starts to go. But that would be considered a warning sign classically for Alzheimer's. So and he had a family history.

So here he you know he was right to be concerned. Okay. And then 20, 21, they did it. And you can see and they were doing basically a full Burleson protocol, which I'll show you is you can see a lot of this red is gone okay.

His cortical grades come up to 61 percentile. And I look at that. Besides the hippocampus and his hippocampus that actually games like ten points to which is really important for like 5969, the cerebral white is down at 78th percentile.

That's come down. The cerebellar white had come down. The primary motor had gone up to 71%, which was good. And where the temporal lobes are at 36 percentile, that's like that's not supposed to happen. Right.

And I mean, you could say like that doesn't happen. No, no. You're when you, you know, it's amazing because I mean, like, we talk about neuroplasticity, but that always suggests that something else took over the function.

But here you tell a restoration of of of mass. Yeah. Exact like that. Exact like. Yeah. Wow. And. Right. And you have to sit there and think. And that's why I'm saying I didn't catch that at first because it just wasn't in my mindset that that would happen.

Yeah. So and I think he was a TBI patient. See if I can find it. Who he was. Someone I remember, who had had a concussion in a bar fight, and we had a find it on here, and it's been tricolor asymmetry.

Traumatic Brain Injury, Inflammation, and Asymmetry

Because he just didn't, you know, was an age, like, in his 20s or something. It just didn't compute, that even though we had to go to, like, NYU, you know, in Bellevue, I think, get it fixed. It.

But that was a problem. So I think that may have contributed to to some of the issues he was seeing. And the, so you can I yeah. Can you just just, can you speak to some of the asymmetry other than, you know, in the ventricles, but, you know, like, you know, one of the things you often notice is significant asymmetry in some of the parts of the brain.

The those are almost always you feel related to past trauma. But no, I mean, I we have software that can kind of go through and tell us how much like asymmetry there is, like, 20% differences, 30% differences, you'll see 60 and 80% differences.

Yeah. That's when I start looking at it because we don't know what a brain is like when they're born. We know our brains are never totally similar. And I think there are genetic.

You know, you talk to parents who may have had learning difficulties or processing, and I'll put that in. Is like that might be part of what we're seeing.

But my major conclusion is it's infection is like what else eats, you know, has basically eaten, destroys different parts of the brains at different rates.

So I'll see some of I'll see some, you know, like high patchy asymmetry and maybe a low cortical gray and say I'm thinking Bartonella. I'm thinking Lyme.

And we definitely want to check for that. So let's try to keep this a little more elementary for people. But yes, you can look at that and just say like, well, this is sort of bizarre because you have, you know, like the primary mode is 12% on one side and like 80% on the other, and that doesn't happen.

One person I got yesterday was like that was left handed. So there would be some asymmetry. But that is it. And also a blood flow difference, you know, so but pulses I don't think is is going to be on both sides.

But if it's a CCI issue and I've had some of those where it's the if we're getting a cutting it off on only one side, when you have compression of the cord or compression of the, cerebral arteries as they go in, I think that's definitely contributes to so and we do see a change over time.

We see it get better, a fair amount, but and then you see some things stay, that I think may be genetic. So that's what I'm looking at when I'm looking at that.

But it's always I would when I look at that, I usually want to go back and confirm it, certainly with better testing. Yeah. You know, no, it's just an area that that just begs for, you know, a lot of a lot, a lot more data and a lot more looking for what's, you know, what's what's underlying these things.

Right. And sometimes you do get history. So we're both I mean, a lot of times you get TBI histories with infection, histories with mold and you looking at all of it, too, and I would say a couple of those there, that was true.

Yeah. But I'm thinking of terms of, of things that we, you know, blood flow, both in and out and neurologic flow in and out. You know, it's just, boy, lots of things to look at.

But there is. But, you know, if you've seen it for a while, you begin to really be able to go through it, at least major outlines. And then you can look at different parts of the brain.

A system like bridle recently was in the 99th percentile. Most of the regions he had had a severe accident. In fact, when I looked at his skull, it was actually misshapen.

I mean, I could look there and just see what that doesn't look right. But he told me I can't feel my limbs at all. I can't feel anything in space at all that is parietal. And that's so the the good points.

I wanted to make the point here with the person who is a 65 year old and he is getting treatment with hyperbaric, I think, Bartonella. And we're trying to get another one.

Is he got the improvement? It's a long list of supplements. Okay. He's a compliant person. He does not want to lose what he has, and he has. And so he's doing keto flex diet.

He was doing high intensity interval training, which is what Bredesen really likes is where you just do the activities so that you have pulse, very high activity.

A lot of my patients, honestly, with chronic fatigue, are not going to be doing that. We're very happy to get them up and walking and doing some gentle checking.

But the output of patients is somewhat different. Their bodies don't hurt. They don't seem to have the amount of

fatigue. Many of my patients. And so this has happened Lyme and mole treatment multiple supplements here you can see from different categories of just red everything mitochondrial mast cell infection removing toxins.

And this list change fairly frequently. I believe he was doing some stress management. Which is another word of wasn't really therapy. It really was more stress management.

He was doing the brain training HQ to make the brain work better. And I think that can be very useful too, is just focused training is just the number of people who will do that is small and they tend to be executives, people who who already whose brains were working pretty well, who are willing to do that.

Optimizing sleep. I'm going to talk about that is incredibly important. And hormone optimization. And essentially by the same protocol, you, you're fixing everything you can find and making people work harder than they've worked and really getting blood flow going and really getting the diet very anti-inflammatory.

But you end up with that. I mean, I mean, take a look. It's a tremendous amount of improvement there. And he hasn't even done at that point, I believe, Lyme treatment or hyperbaric or he his peak that he was doing was oral, not IVIg.

So these are all things that people will tell you, will give you more improvements. Right. And you're looking at me Eric like really wasn't even in. Yeah.

No, no, I mean it's it's just so impressive. You know, it gives me hope. I mean, I've always, always thought we could reverse things and I see things reversed, but I haven't done enough before and after neural clients.

I think that's something we need to do. Yeah. It is. And then, you know, yeah, it is, it is helpful. So this leads into a question is like, you know, why is it getting why is this important?

A lot of people don't do it because they, aren't don't feel comfortable. They know they don't know how to read them or they think it's very expensive.

And I like to say, you know, in Arizona, it's $350 in the winter season, if it's gotten down to 270 some years in summer is that's less than the cost of a medical tax test.

That's cash and that's they we can get that in Southern California, too. So there's a lot of padding on the cost of MRI. And this is a really good price and should be at that price.

Everybody's, everyone should have that as part of their training, especially when it's chronic and complex and you're really not quite sure what's going on.

So it's a warning. And we do get a lot of people whose parents have Alzheimer's who are like, yes, let's get that, because I'll get 40 year olds whose hippocampus is in the, you know, less than the 10th percentile.

There's a family history, and that's a person who now is very motivated to work harder than they do. They're used to working at their health. So it's going to also, most of my patients, obviously some psychiatrist, come with psychiatric syndromes.

They've been called psychiatric. Unfortunately, in the legal, you know, realm and in disability realms, the word psychiatric means, hey, we have no responsibility for you.

It's your problem. It's not ours. Right. Is if you're getting disability, they get knocked you down to two years. That's it. Instead of giving you full disability in the legal realm, it's like, how can you know this person's crazy?

This. You know, we don't have anything to do with, you know, the mold in their wall had nothing to do with it. Lots of lots of these arguments are made, and I get to refute them by showing that, hey, there's real neurological dysfunction here.

This is a, you know, disordered brain. You show some of these, you know, C's and blues, you know, and there's no way you can keep arguing that there's not a toxic, problem going on with neuroinflammation.

It's not just whatever, whatever craziness is that you don't want to pay for. That's not the problem for this person. And I'm being sarcastic because I think most psychiatric illness is going to be neuroinflammation.

And I like neuro quants because when I got better at doing them, I can give people a much more refined understanding than depression or anxiety is look, look at that amygdala.

You know, it's running the show for you. And your frontal lobes are a little small and they're not giving many breaks here. And so we can work with that instead of just saying, you know, you have like, you know, bipolar or impulse control issues.

Yeah. No. And there's nothing like seeing, a test that just gives you, that space to, to get outside of yourself, you know. Yeah. I think right of, like, you know, I know a lot of things have been thrown at you.

I know there's been a lot of gaslighting. I know for some reason, most doctors with no training in psychiatry feel perfectly qualified to comment on psychiatric symptoms.

And patients they don't understand, like no training. But we know this is anxiety, honey. And then there are multiple ways they have for fixing it. And they never bothered to look for parts.

That's really a common classic one. And so again, it's obviously a little easier to get people to buy into the idea of trauma and safety and limbic training when they can see their brain is just looking like every other brain that has limbic dysregulation.

And then again, the big one is document improvement is, which is a very big deal for a lot of people. Everybody, so I don't know, you know, where treatments are probably we've had a lot of people talking about treatments.

And I don't think I had, you know, anything particularly special here to, you know, for the brain. I like the usual fish oils. I like SPM, no. Yeah. Perhaps more than fish oil when it's really acute because I find that acutely it's, you know, purified fish oil and it works faster and is more specific.

So I use SVM, curcumin and resveratrol.

Brain Recovery After Treatment

Resveratrol really helps that blood brain barrier. And people where we're seeing there's a lot of swelling when they have elevated MMP nine, because MMP nine is a marker for the blood brain barrier permeability.

You can, you know, watch that go down with resveratrol. And then diet diet is everything. And then can magnesium and those are simple things. But a lot of people just have never gotten the measured.

Or people measure them once and don't keep at it. You know, I'm measuring a lot of copper now because everyone has taken zinc for Covid. They didn't take copper notes in really, a lot of low copper's.

And you need copper for the brain to work correctly too. Yeah. So again, it's just the diet is going to be anti-inflammatory, which is usually low carb and increased good fats and lots of good fats and, you know, olive oils, phospholipids, fish oils, all those things are going to help that myelin sheath and help the brain detoxify faster.

And sleep. And so getting sleep better is part of getting the brain better. And it's one of the best tools we have to get your own body to clean it out using the lymphatic system, using the lymphatics.

So I will work on sleep as fast as I can because of a person's not sleeping. It's again, we're throwing a lot of supplements at people that the body doesn't have any room to really use them, because they can't even detoxify

the brain. So, I will, work with sleep and general with, you know, women.

I'm going to love progesterone, which is just the easiest thing to do. Niacinamide, which is kind of underutilized, breaks down glutamate. And glutamate toxicity is an enormous problem in a lot of the anxiety we see.

And glutamate does destroy brain tissue, too. There are some meds I'll use that reamer on is very, very antihistamine project. And so when I have somebody who's not eating in particular and not sleeping, it really should be the med of choice because it will increase appetite.

And a very low dose is like 7.5 or half of that will really bring around sleep fairly quickly when there's a mast cell issue. Yeah. So I think clinically it's one of the it's finally one of the better tolerated, of the, antidepressants that are out there.

Yeah. Yeah. You don't give it to someone who's like 100 pounds overweight. That's a big mistake. But for a lot of people, the weight is becoming an enormous issue.

You may have to hospitalized them because the weight loss itself, the very reactive ones. You can't eat. That's a that should be the med of choice. And the other one that's very underutilized is your tryptophan, which a lot of people don't realize is an H1, H2, an H3 blocker.

And again, that's a low dose treatment like ten milligrams. Like, you know, when I was using it for depression would be 150, 200mg. But at ten milligrams, 20mg it really can help.

Migraines and migraines are pretty destructive to the brain. They're not benign. And so Nord Trip Line is one of my favorites too, for antihistamine and Seroquel, it's antihistamine, neurologic.

So those are okay. Melatonin. Many people use magnesium sleep routine. Everyone tries and then some of the peptides may start to help too. But these are just things people may not be thinking of much, which, again, can be used and can be very useful.

And again, not permanently, not the rest of your life, but enough to get sleeping and start the process of detoxification and beginning to rest and digest so your body can start to heal.

And CBD and PR as bioactive lipids is one of the best combinations that come out in the last few years, is I use that for almost everybody with mast cells.

I use a lot of luteal and for mast cell to but that combination, I think is very helpful to the brain, very helpful to fight and flight. And it's not something that makes people high, but it starts to really help pain with the pain.

It's really absorbed. With the CBD and fast tidal choline. Many people use that for the, you know, oral PK protocol and stuff. And again, I've shown orally it can be useful, although most people say, you know, you need to do it.

It's very hard to find IV's, especially during Covid. It was really hard. So those are things again, to think about. And then just to and is I'm a very big believer that body work has to be a very big part of this, body work, meaning integration really of, you know, of the mind with the body.

A lot of people, especially in fight and flight or living in their mind that their, their fears are not real, but they seem very real. It's perceptual and the body itself is the most unsafe place in the world to them.

Every time they feel their body, something new is gone wrong and they don't want to be there. Yet, getting into your body is probably how you actually feel a sense of safety.

And I give a good story here when I go into this is, one of my patients was, came to me as a young guy. He had been, ended up in jail because he was, very convinced his neighbors were doing bad things to his house.

He lived with his mother. And the neighbors were making noise, and he was very angry. And anyway, Sheriff came one night, and he mailed self to the sheriff and ended up in jail, which wasn't the right place.

And then in jail, he did even worse. And, he did get released and sent to me because people realized there was something, you know, something off about him that his his paranoia.

And so his first diagnosis really was like paranoid schizophrenia. Who was the right age? There was a real paranoia. And, you know, I did a neuro quant.

It was one of these 99 C blues, like massive neuroinflammation here. We can work on that. And we didn't guys been very compliant with, with, you know, fish oils and some multivitamins they use all the time.

He, is on the vaccine, which we use for Covid but worked well for OCD. And he did well and there was some mold we didn't do, like major mold moving out of the house, mom cleaned up.

You know, the public is still some mold, but the combination got him down. But the treatment, I recommend it to get detox is very swollen brain. And you begin to understand the paranoia and the temporal lobes.

Was I recommend him for lymphatic drainage, which we were just talking about before, but someone very good, because, again, that can start to move the lymph here and relieve some of the pressure.

And most everyone that's going to be complaining about pain back here, which is the cerebellum, which is really swollen. He had a very big cerebellum to and he actually went willingly.

It was like 24 year old male. And he was going and going every week and was getting better. And I'm thinking it's the meds we're doing right and everything.

But then I realized, like a couple of years later, he was still going. And he had at that point, it was kind of clear, that his diagnosis probably somewhere on the spectrum, he had, he had done something pretty funny, I'll never forget, which was he texted his parole officer in Ystrad on a date, at which point he realized that it was a social inappropriate.

It's a little bit. Right. And I sort of started to switch it. But he has continued for like 3 or 4 years for, you know, that the light touch had gotten him the sense of vagal tone that I don't think he had felt before.

And he doesn't know why he's going. His mother goes with them. But he just actually, I think in that setting relaxes and has begun to feel what relaxation is.

I don't have to say with getting you into vagal tone. He's actually getting it through like touch. And again, it may have been one of the first times because not everybody's lucky enough to feel they will totally in their life.

And so he just continues, we don't say much. It's like this is a good outcome. He's off his jail records. That's I guess the parole officer forgave him.

And, he, you know, is maintained with some low fish oil and a little bit. He's off any antipsychotics, a little bit of blue box and, and lymphatic and like.

Yeah.

Treatment Approaches for Neuroinflammation

You know, this is something I would love to emphasize to people is that, I've always tried to have is many different physical modalities available because and remind people that if one person's touch doesn't work for you, you have to be open to try another because it it's I find it, you know, this is, body work is crucial for most people who've been chronically ill.

And unfortunately, people who are chronically ill. As we've been discussing, your body is on high alert. So, you know, and you're working and you know, and if you go to what I call a regular body worker who hasn't had experience working with people who have nervous systems like you, you're often going to be disappointed.

And not because they're bad, just because they're going to touch you up with a little more force, or try to move your system a little faster and you're going to flare.

So just please, totally, totally my experience, I say you can even say it here is avoid Rolfing, avoid myofascial is just those are the people who believe everybody is like a linebacker, and they're pressing as hard as they can and releasing incredible amount of toxins, plus setting of dangerous signals everywhere.

Lymphatic drainage, which is the very like, like nothing is happening, but you feel pleasant and you don't know why or you feel something happen because you feel so toxic.

It's like, well, this must be good. But a tandem. Yeah. It's, you know, so, osteopathic manipulation, I don't know when I see some of these enormous asymmetries, I see I have no other way to get it better than to say, you know, osteopaths, cranial, sacral people understand how to move the meninges in the fossa in a way that helps. And I do have some documentation.

I put it together of people who have, you know, showing you their asymmetry is decreasing over time. And they're getting that treatment. So it's a very big it's a very big recommendation for what we call microvascular cerebral edema.

And there are very good people in the country. You have to ask around. The osteopathic association has, a list of people who focus on that, and are very well trained.

But there are also a number of practitioners who received their training in other ways who can also be very good. And again, it's the person as it's truly the person as well as I say technique they're using, it's the singer, not the song. And, so, that lymphatic drainage all the time and then, you know, again, we can talk and I think most people know there are limbic retraining programs that, I tend to recommend, the ones that are easier for people to do, not harder.

So I like things that involve breathing, that involve body work. And there are more than the two that are usually recommended. If you look around, a number of people are now offering resiliency courses.

They may be physical therapists. You've gone through some of this who are just, teaching some ways to quiet that danger signal using what we call somatic experiencing, which is holding the body in certain ways, beginning to notice the body, beginning to notice your feet on the ground.

If you feel if you make people don't feel their feet like the other good. You know, I wouldn't have known. This person doesn't feel his arms, doesn't feel his feet.

How is he ever going to feel safe? You know, he doesn't have many ways to really feel safer ground. And so these sorts of things chee-kong I love because it makes the brain use both parts, makes it use the parts it doesn't want to use.

All of us have one side that's not quite as strong. All of us have traumas in our body. I can tell you we've fallen off things. We've had things happen.

We don't move parts of our body correctly. And when you start to move them, you usually tend to release a lot of sort of bunched up fascia where things are not flowing smoothly and that flows smoothly.

You'll see improvement in health in multiple ways. So, organic intelligence, somatic experiencing visual therapy is really important because I can look at the eyes usually in the temporal lobes and certain parts.

It's where the auditory and visual work together. And you'll see some really symmetry. You'll see some of the smallest numbers in people's brains there.

And it's a clue to me that person is going to be having problems with accommodation in and out and, moving from side to side, and that's always mixed.

So I have a perfect site. No, you have perfect tunnel vision, okay. But you don't have perfect sight and making it work and all the ways your site's supposed to.

That relieves a lot of anxiety and a lot of trauma is held in the eyes. We know that through eMDR and brains body. So, functional neurology can be useful for people with who've had TBIs, but I don't recommend that one first, because it's too focused and it's a little too hard, and it leaves people thinking they're cured when they're very rarely are.

It's like, well, you've done it and you've passed our test, your fix. And it's like, no, it's it hasn't happened. I want things that really keep addressing the idea to journey.

I can tell you how many people have told me I did so-and-so's course like, well, I did. They were trying to so-and-so's course. I said, you did it. What are you doing now? Okay.

The journey. It's a journey. You're still you still are clearly in the. Oh, I haven't been doing it every night. It's like, no, let's just find some different things and find some different ways that you can incorporate more easily.

It's like every day, in every way. You need to be working on the sense of safety and recognizing how often and actually most of everyone has gone through Covid or, I mean, the whole pandemic.

It's just so obvious. All of us have dysfunctional responses and different ways of freeze where there's no movement. And that's the personality and mold treatment who two years later, after it's been diagnosed, they know their major problems, is still making their list of what things they're taking with them when they move out of the house.

It's it's two years later. This is way too long week. The fight and flight are very easy. They're in panic. They have five doctors on speed dial. They have multiple protocols.

They're doing things they always want something more for their gut or sleeping, and they are out of their house the minute there's a drop of mold or they have, you know, again, a couple of IEPs and speed that you don't feel that way to you have to find this balance.

And the balance is going to be somewhere in here feeling it for the first time, learning to cultivate it, learning to let go of things that always have you, you know, in panic and fear that you can let go of.

You don't need to live in stress all the time. So that's pretty much where I and is just the brain to me is fascinating. The autonomic nervous system coming through the brainstem and how the brain communicates to the body is through the autonomic nervous system.

And if you want to get well, you're going to have to talk to your body. You're going to have to actually make it your friend and not this enemy that every time you look at it, it's something else bad.

It's happened. So it's getting the sense of safety as you heal that I think, is when I start to look at my patients who get better is they have a little more patience, a little more resilience, and a little more sort of spiritual attitude of like, there is a gift here somewhere.

I haven't found it. I'm not lying to you, but I know that the you know that, there's something here. And, you know, they're not bitter and they're not trying to blame people, other people for this.

It's it's they're working on themselves, and they come and they're very willing to hear what suggestions I might have and, and experiences. They're not all going to work out.

You have to find the ones that work for you. So that's why Neuro Connect Me is is just endlessly exciting because you can see progress and even doctors need to see progress.

You know that that what we're doing is, is working. Yeah. Yeah. Hope.

Body Work, Safety, and Hope for Recovery

Hope is is what we need just to just to keep going and seeing the next see the possibility for healing and, you know, and I think it's what you laid out is just of a beautiful course and in a way, for us as physicians and for patients to to just, you know, guide themselves a bit, you know, and that's, that's so hard because for so, so many, for so many people, they've been told for so long that their tests are normal and they're just you neurotic and, you know, we have lots of blood tests now, but the blood tests are often scoffed at, and at least the neural quality is something that it's fairly, you know, even the neurologists don't know it exists when they see it.

They have to acknowledge that it's somewhat real. You would hope. And again, and I'll tell people again, you're going to find the gaslighting there too.

Well, I didn't learn it. Therefore it doesn't exist. Yeah, it is an attitude, but there are more neurologists who will look and say, well, that doesn't look too good for and even psychiatrists, you know, we'll also psychiatrists tend to be like me, the most fascinated.

Like, wow, you can actually see the amygdala. So yeah, the gaslighting is so pervasive in chronic, complex illness, that there's never I don't think anybody who's gone through without having some gaslighting, that finding some test that seems validated by multiple ways and seems to be real science and nobody we can't say that is mold.

We can say that that is neuroinflammation. And that can certainly be consistent with a lot of your symptoms here. Is is very, very helpful. So it's, it's, utilized and it's not even expensive.

So I think it's just the brain's scared so many people, it just is like, oh, not my favorite subject. Oh, you know, I, I'm going to mess up those cranial nerves.

What did nine do again as people are just a little terrified of it. Yet it's not nearly as easy as looking at a urinary mycotoxins test and saying, yeah, there's mold.

But it gives that to me much more information as to where, you know, how is mold affected you? Which is the question I'm always asking. Yeah. Well, I thank you that that's that is the kind of information we, we need moving forward is, how is it affecting you?

And more importantly, there's inflammation in your brain. Let's see what we can do about it. Get it better. You know, and you've laid out a really, you know, kind of a straightforward beginning course even if you're doing it yourself.

A lot of these supplements you can play with, hopefully you can find some good physicians to work with and help guide you through this morass because it is a mess.

Not easy. So yeah, it is definitely a mess. And a and the person who can be somewhat in charge of what they're doing without totally taking over, you know, allowing some other opinions to come in is just, you know, it's going to be the best is going to end up getting better because so many people really do get better.

And that's what I think I would most like people to hear and show you is, yes, people get better and I can tell you every one of those things I've showed you, people were pretty desperate or very desperate in the beginning of For Any Glimmer of Hope.

Because when, you know, I've had people say 50 physicians who told them there was no hope, it was psychiatric. And if they just took enough meds, say, be comfortable, pretty much.

That's, and only that, if only because I wasn't working. They kept going. It's the meds were not making them comfortable at all and suicidal ideation.

And that wasn't even working, which is when you really, really lose hope. The psych meds, even though hold you. Well. Well, that that is what is amazing because, our patients, you know, have the will and that that's impressive sometimes because it'd be easy to give up, but.

And then, So thank you so much, Mary. It has been a real pleasure and, hopefully a real learning experience. And the great part is that, yeah, it's recorded so you can watch it again, because I think this one you're going to need to watch a few times.

Yeah. Okay. Thank you so much. For.