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A tale of two pandemics: exploring the links between Lyme and COVID

Psychiatrist **Dr ROBERT BRANSFIELD**, MD, has been helping Lyme patients for more than 30 years. His ground-breaking research revealing how Lyme creates psychiatric illness has led to a comprehensive system of patient assessment. Here he also provides clinical insights from new research showing that patients under active treatment for Lyme seem to be protected from COVID-19.

've been treating Lyme patients for more than 30 years, and now we're suddenly dealing with COVID-19. We have to ask: how are they similar, how are they different?

Both are zoonotic diseases, both have multiple strains that show different manifestations, both can be avoided by wearing protection. Both are global diseases, both have no symptoms in some and severe symptoms in others. Both have some scientific support suggesting that you can get reactivated, both can be relapsing, both have a spectrum of very different symptoms in different patients, both are very complicated and difficult to understand, both are associated with co-infections and both are associated with very complicated immune reactions including cytokine storms. They're



This article is edited and extracted from a transcript provided by AONM (The Academy of Nutritional Medicine). Dr Bransfield's presentation is one of a compelling (and ongoing) AONM webinar series on COVID-19. Full details – and Dr Bransfield's full webinar – at: https://aonm.org/webinars.

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multi-system illnesses; they have their mental manifestations, neurological manifestations; you see fatigue, brain fog, you see poor quality testing – and they can be financially catastrophic – although some people can make money from them.

There's a gap between frontline physician observations and healthcare bureaucratic policies. In both cases there's a focus on public health and vaccines, and a lack of focus on effective treatment. And in both cases, there are regulations that sometimes impede effective treatment. There's misinformation in both cases, there are theories about biological manipulation or warfare that may have started these infections, and there's dogma interfering with forward progress. And with both there's this debate about on-label versus off-label





treatment. So in many ways this is what many of us have been dealing with for a long time. It's just – how is COVID-19 different?

Lyme is a spirochete, whereas COVID-19 is caused by a virus. And PCR testing, which is quite reliable with many things, is seen as being a reliable indicator of the presence of COVID-19, but for some unusual reason, it's seen as unreliable with Lyme disease.

Lyme has been an ancient problem. From archaeological information we'll probably be here a long time from now, whereas COVID-19 may come and go. Lyme is a more gradual onset, COVID-19 is more abrupt, and there's more disease than related to Lyme. There's less attention and funding for Lyme disease than there is for COVID-19, and there's more questioning the legitimacy of Lyme symptoms. We see more advocacy groups with Lyme disease, and that's the major source of funding for forward progress, whereas COVID-19 gets a very large amount of funding from private industry and governments.

And then there's the question of personto-person spread. It is more prominent with COVID-19, although there's some degree that seems to occur with Lyme. Now there's a couple of questions that come up. If you have Lyme and COVID-19, both at the same time, what's the effect? How does COVID-19 affect Lyme disease and how does Lyme disease affect COVID-19? I'm going to come back to this.

In an article I did a couple years ago while celebrating the 100th anniversary of the end of World War I, the issue was: did infections caused by World War I contribute to causing World War II? My basic hypothesis was that many people came out of these infections, be it the pandemic of 1918 or some of the other infections that were part of World War I – and there were a lot of them – with brain injury. Did that brain injury and a very large number of people affected, probably millions of people, lay a foundation for civil disruption and the violence that was the foundation of causing World War II?

We can look back and see that other pandemics cause neuropsychiatric

complications. For instance, in the pandemic of 1918 you saw a lot of Parkinson's – there were actually two pandemics at that time, and they were kind of jumbled together. But we see psychiatric symptoms that are a part of this SARS Cov-2 microbe that causes COVID-19, and we can see that there's some of the same issues: there's this immune reaction and that immune reaction in turn causes cytokine storm, and that can cause some symptoms.

One thing that makes COVID-19 a little bit different than other infections is that you see hypoxia because of the damage to red cells. So, some of the patients who have recovered seem similar to patients with carbon monoxide poisoning or drowning victims, where they have encephalopathy - and you do see memory problems, you see emotional problems. There can be a lot of small vessel, large vessel clots because there's a clotting disorder. So there's strokes and other problems; it's a complicated aftermath that we're beginning to see. And you may see this brain injury in people that maybe didn't have a very severe disease - yet they had neurological sequelae from it. We're seeing a number of suicides of people that have acquired COVID-19, so that's somewhat similar to what we see with Lyme.

It's bad enough to deal with one pandemic but what about two? So is there hope for us to deal with this? In order to move forward, we have to have some medical plan, and when I propose things in some public health groups, a lot of times the answer is: "Well, you need double-blind controlled studies before you can implement any treatment". But in only about 2% of the time is there strong evidence, strong consensus (see graphic above). In many ways this is like landing on Omaha beach in Normandy in World War II and saying: "What should we do, how should we deal with this?" "Well let's wait till there's doubleblind controlled studies before we do anything". So we have to have treatments quickly. But how much evidence is enough? Do we need all this complicated proof, or should we look at frontline doctors and see what works and what doesn't work?

Some people sneer at that being anecdotal and inadequate evidence, but when you're dealing with a quickly-moving pandemic you need to sometimes look at things differently. And whenever there's anything new that happens, there are always people who are



What is Evidence-Based Medicine?



innovators, early adopters, and people who are laggards and sceptics who take a long time to adjust. We can look back – and this was a catastrophe – at what was called the Tuskegee study, where syphilis was studied. This study was continued long after penicillin – that could have stopped the disease progression – became available. We have to not over-study, we have to know where to draw the line and implement treatment, even if our research is imperfect – it is never perfect.

Many people are saying, "Let's wait for a vaccine and let's use public health treatments like social distancing". We've been waiting for a vaccine for HIV for a very long time. It's still not here. We're waiting for a vaccine for the coronavirus common cold - and I don't think there's any RNA virus vaccine that's ever been developed. We may never have a vaccine for SARS-Cov-2 even though there's a lot of talk about it. So when we have this complicated, quickly-emerging disease we have to think outside the box. Whether it's Lyme, COVID-19 or something else, we have to revert back to the true definition of evidence-based medicine, which isn't just absolute scientific evidence, but evidence that's blended with clinical judgment and patients' values and preferences.

The old picture (below) of mental illness when I entered psychiatry in the early 1970s. This is what we saw in the state hospitals. It was catastrophic, and we wondered how to understand it. "Is there something more that we can do to help people that are lost souls with chronic mental illnesses?" Before that, mental hospitals were filled with syphilis patients; once they recognised there was a connection, they gave penicillin and that emptied a lot of the hospitals. We can't forget that lesson; we have to go back to what we learned and understand also the physiology and combine that with our psychodynamic theories. Presently we look at evolutionary medicine, the microbiome, psychoimmunology and PCR microarray testing, and that expands our knowledge.

In a 2019 paper I looked at psychosomatic, somatopsychic or multi-system illness and the —

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→ connections between them. There are a lot of terms that are used: it's in your head, it's somatic symptom disorder, bodily distress disorder, bodily distress syndrome... ."medically unexplained symptoms" was a favourite term. But a lot of times these terms are thrown around when someone doesn't understand the brainbody connection, and then they call it something inappropriate like conversion reaction, or psychosomatic, or Munchhausen's when it's not - and there's an understandable pathophysiological explanation. Usually, complex, difficult to understand diseases can get mislabelled this way.

In "Proposed Lyme Disease Guidelines and Psychiatric Illness" I looked at the proposed guidelines for diagnosing Lyme and found

that they fail to really address psychiatric conditions. The guidelines rely on surveillance definition for defining the presence or absence of Lyme disease, which is an inaccurate thing to do, even by CDC standards.

In order to find out whether there actually is there a link between Lyme disease and mental illness, we carried out a systematic review that included around 1,958 citations. After sorting through them, we found 387 articles saying that Lyme causes psychiatric illness and 73 saying Lyme causes dementia. In the guidelines they only cherry-picked four articles, two of which failed to show an association. So out of around 467 peer-reviewed journal articles that showed a connection, they used only 0.4% of the literature. That was evidence bias, not evidence-based reporting.

There are many faces to Lyme disease, and that's one of the difficulties: it presents in

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- Suicide and Lyme and associated diseases. Neuropsychiatr Dis Treat. 2017 16;13:1575-87.
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- Aggressiveness, Violence, Homicidality, Homicide and Lyme Disease. Neurol Disease and Treatment. 2018:14; 693—713
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- A Clinical Diagnostic System for Late Stage Neuropsychiatric Lyme Borreliosis Based upon an Analysis of 100 Patients Bransfield RC, Cook MJ, Aidlen DM[,] Javia S. Healthcare (Basel). 2020, 8(1), 13

Recent articles by Dr Bransfield and colleagues expolored in his presentation.

different ways in different people. In one study they looked at twins with Lyme and found that the twins weren't infected by the same tick, so they did have different symptoms. A lot of times I see people later in the disease when they have more of the psychiatric symptoms; there are general patterns, but each patient presents a little bit differently. We see some of the same with COVID-19.

In a review article, I drew a connection between Lyme and a large spectrum of psychiatric conditions and also explained it. When you get the infection, you have immune provocation that then contributes to the symptoms and disease progression, and then the person's own stress adds to the stress and compromised immunity. It's a vicious cycle (see above graphic).

In a more recent article, Llooked at 100 late-stage Lyme patients, looked at the pattern of their symptoms and then developed a diagnostic system based on that. We included only "CDC positive" patients. (We're going to do another study looking at people that didn't quite meet the CDC definition to see if there's any difference.) And then we compared that to healthy medical students who did not have Lyme disease, compared symptoms of the patients before they were infected, and made a comparison to what studies showed to be the prevalence of these medical conditions in the general population.

The average patient was nine years post-treatment, post-infection, and there

was a very significant statistical difference. The average patient pre-infection had 4.6 clinical findings and 82 clinical findings post-infection. The healthy medical students had only four clinical findings, on average. In people with other chronic illnesses, not Lyme, the average was 22 clinical findings.

This slide (overleaf) is the National Comorbidity Study where they asked: "What is the prevalence of different mental illnesses in the general population?" This was a control group; as you can see, pre-infection, my 100 patients and the National Comorbidity Study correlated quite exactly, so it did help to validate our study.

Let's look at breaking down these different symptoms, looking first at attention span. In the general population there's about 7% or so attention deficit disorder in the population. Some studies more, some studies less. But





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→ then post-infection it went from 7% to 84%.

In Lyme we see dyslexiatype symptoms affecting processing: fluency of speech, reading comprehension. There's slow processing, and this is a white matter issue - Lyme is predominantly a white matter encephalopathy, and so you see these acquired dyslexia-type symptoms that these patients invariably did not have before they were infected. Executive functioning, which is the ability to create and sustain goaldirected behaviour, so brain fog, trouble concentrating, trouble prioritising modal symptoms, a time management problem time escapes a lot of patients.

And then imagery. And this is an area that I did a journal article on. I think it's rather significant. You see a lot of vivid nightmares, hypnagogic hallucinations, where someone starts dreaming before they fall asleep sometimes, and intrusive images. That correlates with temporal lobe inflammation. People describe it sometimes as horrific intrusive images, almost like flipping through the channels seeing horror movies, cheap horror movies, one after the other. And then the emotional symptoms, mood swings. Anhedonia is a big thing - decreased capacity to feel pleasure, decreased frustration tolerance, depersonalisation is common (that's a feeling of detachment) and then decreased job performance, decreased social functioning and a lot of family problems. Suicidalities, substance abuse - and a small percentage of patients become homicidal.

I did a lot of analysis of Lyme and suicide, estimating in the United States probably 1,200 patients commit suicide per year from Lyme. And substance abuse is an overlooked

area. Many Lyme patients have chronic pain and anxiety and particularly when they can't get treatment through mainstream channels they self-medicate, and sometimes you see overdoses – including opioid overdoses.

We see depression, OCD and generalised anxiety, so panic disorder that can be long duration. It can last much longer than other panic attacks that we see outside of Lyme. Social anxiety disorder, post-traumatic stress – sometimes from the trauma of the illness and sometimes from the intrusive symptoms. Fatigue is a big thing. We have fatigue and sleep

Pre-infection prevalence of mental disorders in the patients studied compared to the prevalence of the same disorders in the 12 month National Comorbidity Replication Survey

Psychiatric Syndromes	Pre-Infection	95% CI	National Comorbidity Survey
Depression	9.0%	(3–15%)	8.2%
Rapid cycling bipolar	3.0%	(0-6%)	2.6%
Panic disorder	2.0%	(0-5%)	2.7%
Obsessive compulsive disorder	2.0%	(0–5%)	1.0%
Social anxiety disorder	7.0%	(2–12%)	6.8%
Generalized anxiety disorder	3.0%	(0-6%)	3.1%
Posttraumatic stress disorder	6.0%	(1–11%)	3.5%
Explosive anger	3.0%	(0-6%)	2.6%

disorders, non-restorative sleep, difficulty falling asleep staying asleep, delayed shift. They stay up late, they become night owls. Appetite disturbance is often anorexia, earlier weight gain later, sometimes carbohydrate craving causing weight gain and then decreased libido, a few patients increased libido and temperature control. Often low body temperature, sweats, pills, intolerance of heat, intolerance to cold.

Headaches

In Lyme there's almost a symphony of headaches, so there can be the tension headache, there can be the headaches from the neck that shoot up into the scalp or behind the eye, those are cervical radiculopathy headaches, there can be TMJ headaches, migraine headaches, sinus headaches, cluster headaches, sexual triggered headaches and also a description of a sense of pressure inside the head and cranial nerve impairments.

All cranial nerves are affected, not just the 7th cranial nerve, and I invariably do an assessment of all the cranial nerves. You particularly see a lot of eye findings, like sensitivity to light, and then you see the cranial nerves that affect the eyes, double vision, pain on the side of the face or weakness or loss of sensation, Bell's palsy.

A fair number of people have mal de debarquement, that's when you feel like you're on a boat and you feel like you're rocking, so it gives a vertigo kind of symptom. Tullio's – which is loud noises make you nauseous and dizzy, then seizures, more so partial seizures. Many of these people

get misdiagnosed as having psychogenic seizures. Tingling, sometimes formication – which is crawling under the skin, and people think that's delusional parasitosis – it's a neuropathy symptom.

And there can be a weakness tremor, restless leg, quite a spectrum of neurological findings. A new thing I've noticed is sensational wetness or sensation of vibration that people describe. It seems like it's a sensory impairment peripheral neuropathy rather than radiculopathy, which is in the nerve root.

The Lyme joint

And then the joint problems. You can invariably see migratory arthralgia, which is quite unique to Lyme, and different from other forms of arthritis. It affects joints, you see deep bone pain, particularly with *Bartonella*, the feet can be sore, fibromyalgia and epicondyle tenderness on the surface of the bone – so that's quite unique. Periostitis with Lyme and cardiovascular rapid pulse as pain, rapid than the heart rate, POTS – but

you can also see orthostatic hypotension sometimes.

You see cardiac induction

defects and on rare occasions

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- Brain fog
- Sudden mood swings
- Decreased social functioning
- Decreased job/school performance
- Depression
- Fatigue
- Insomnia

- Night sweats
- Low body temperature
- Headache
- Blurred vision
- Floaters
- Tinnitus (ringing in the ears)
- Sensitive to sound
- Dizziness
- DIZZI
- Numbness
- Tingling
- Joint pain, swelling
- Fluctuation of symptoms
- Stress increases symptoms

some of the more severe cardiac complications. Then there's shortness of breath: you can see air hunger, especially when there's *Babesia* present, tooth pain, gum disease, GI problems – a lot of patients can acquire what looks like irritable bowel, so they can get abdominal bloating, upper GI distress, lower GI distress and sometimes gallstones. The gallstones aren't from Rocephin, the Ceftriaxone antibiotic used in Lyme, they're from the Lyme disease itself.

Spastic bladder: a person has to urinate a lot of times. Bladder is one of the first places it can go to. Urinary incontinence and other general urinary symptoms. And then other symptoms: chronic pain, intolerance to alcohol, thyroid problems, sometimes enlarged spleen. ACA, which is a rare complication I've seen more with European patients, where there's a wasting of subcutaneous tissue.

So I do that assessment and then ask, have symptoms progressed over time? Do they fluctuate, do you see Herxheimer reactions, have antibiotics helped it? Those are some of the things I look at, and then we compare these findings to other studies.

One of the comparators was my group of 50 homicidal patients. Those were the worst of the worst.

This is post-infection. What have other studies shown about these symptoms? How do they correlate with my findings? Now my findings may be skewed somewhat, more towards people that have more psychiatric symptoms since I'm a psychiatrist. Those cases would be more referred to me. The Rebman study found that fatigue was the number one symptom, and that's what you generally find, that's usually the worst symptom. We saw a similar thing with the LDA study, where that showed fatigue was number one and very similar findings from two totally independent studies.

Like anything, you have to do a screening assessment. I developed screening questions, so there's a quick 24-question screen, a 61item screen and then a more comprehensive assessment that's around 800 items. We also run the co-infection screen, which is good to do for Bartonella, Babesia, Ehrlichia, DNA viruses and mycoplasma. Doing this we were able to show the pattern, show that it's a causal relationship, and we compared it to other studies with control groups. So it's a controlled study with more than one control. Pre-infection these were very healthy people; post-infection they were not. These clinical assessment forms were developed and validated from this study.

So back to the question: Lyme and COVID-19 – how does the one affect the other? One article that just came out on that subject was by Lyme specialist Dr Ray Stricker and Dr Melissa Fesler. They found that all his Lyme patients under treatment did not get COVID-19.

So something about the Lyme treatment

Lyme & COVID-19 Comorbidity

- How does COVID-19 effect Lyme disease?
- How does Lyme effect COVID-19?
- One article on Lyme & COVID-19:
 - Stricker RB, Fesler MC. A Novel Plan to Deal with SARS-CoV-2 and COVID-19 Disease . J Med Virol. 2020;10.1002/jmv.25945.



was protecting them. Here's my hypothesis. If someone has a latent interactive case of Lyme tick-borne disease and is not in treatment and they acquire COVID-19, there's an initial oxidation exacerbation of Lyme tick-borne disease symptoms in addition to the COVID-19 symptoms. And that's what I've seen with patients who were not on treatment.

However, some who have fever reported later improvement in Lyme symptoms, possibly from some type of immune activation. On the other hand, if someone's in treatment, active treatment, and acquires COVID-19, it's a milder infection and they may get adaptive immunity. It seems like a number of these treatments seem to be effective. I've had Lyme patients in active treatment and everybody around them is sick and they're not.

There was a study showing the most common treatments – among them and antibiotics. It's odd why antibiotics should help a virus, but they seem to in some way that's not well understood.

Hydroxychloroquine only works if you give it early in infection. It doesn't really work when you give it late. It's a zinc ionophore, bringing zinc into the cell, so there's a question about the effects this might have on the QT interval seen on electrocardiograms. However, we've been using hydroxychloroquine in a preventative way for decades without ever this being a problem, and the CDC has recommended it. But that's at the dose of 400mg a week; at that dose you really don't have the QT/ heart issues in these susceptible individuals, and that may be a good prophylactic dose.

That's what Dr Stricker and Dr Fesler advise. If you do get worse, then you go on antibiotics very quickly, very early, particularly if you're on oxygen, and you get an oxymeter to show if your oxygen level drops.

There are other treatments that seem to have a prophylactic effect,

based on test tube studies; these include disulfiram, ivermectin, methylene blue, quercetin and vitamins. A, B3 and D, zinc and NAD. So there are other treatments that have effects. This is I think the core to preventing this – prophylactic treatment of high-risk people or maybe even the general public.

Is there hope?

So back to that question: is there hope when there's two pandemics?

Yes – if we're better at recognising these symptoms and we have effective treatment, we can prevent needless suffering, disability,



developmental impairments, learning disabilities and economic and noneconomic costs. Let's protect, let's develop a protective legacy and yes, there is hope.

Two years ago, I began a presentation

talking about a very complicated Lyme case. The patient had hours of down-lows and she was all over the place. She was told she was psychosomatic, that she was having psychogenic seizures, that she was hysterical, that she was going to be paralysed for life whatever she did. She was told "Never, never get pregnant, because that'll make you totally paralysed". This picture above shows how this patient's doing today. I asked her, and she is quite happy to be the face of hope. Our commitment really does help patients.

About the speaker



Dr ROBERT BRANSFIELD, MD, DLFAPA, is a board-certified psychiatrist and is an Associate Clinical Professor at Rutgers Robert Wood Johnson Medical School who also works in private practice. He's held teaching appointments at Hahnemann Medical College

and Eastern Virginia Medical School, and has a particular interest in psychopharmacology, a unified theory of mental health and illness, the link between microbes and mental illness, Lyme and other tick-borne disease and also the link between microbes and violence. He is the past president of the International Lyme and Associated Diseases Educational Foundation, past president of the International Lyme and Associated Diseases Society, and past president of the New Jersey Psychiatric Association.