COVID Long Haul Pathology & Management

Dr. Eric Gordon, M.D. interviewing
Mobeen Sayed, M.D.

Eric D. Gordon, M.D.
Welcome to another edition of mycotoxins and chronic illness. And chronic illness has always been my focus, and today, it's my pleasure to interview and discuss long COVID with Dr. Mobeen Syed. Pronunciations, I apologize.

Mobeen Sayed, M.D.
Either way is fine.

Eric D. Gordon, M.D.
And he is CEO of drbeen.com, a wonderful resource for medical information, and also host of his podcast, which I think has been a wonderful source of information on what's real, and what's the real science in COVID. I said, I've listened many, many sources, and I keep coming back to Dr. Syed as the man to listen to. So, with that, I want to welcome you. Today we're going to talk about long COVID. Where would you like to start?

Mobeen Sayed, M.D.
Thank you very much, Eric, for having me. It's an honor to be here with you, and discussing the chronic diseases. I am a baby in the field of chronic diseases. You are a

master here, so thank you very much for giving me credit as well, but really I am a beginner. For COVID, I think we all became accidentally pushed into having to learn about it. There was no other way for it. So for COVID, as I had been for the last two years presenting various studies, researches, I have collected a number of studies, and based on those a number of possibilities for chronic COVID, long COVID, both after the infection and after the vaccine. And then what are the managements, and what have been the successful managements? I think that is the topic that you have asked, and that is what we'll discuss today. Once again, thank you for having me.

Eric D. Gordon, M.D.
Again, thank you for being here and organizing the information. I think that's the most important thing. People don't realize how much work you put into organizing the information for us, so thank you.

Mobeen Sayed, M.D.
Thank you very much. So, shall we start?

Eric D. Gordon, M.D.
Yes, let us get going.

Mobeen Sayed, M.D.
Excellent. The way we will discuss today, and please, Eric, discuss with me during this time as well. Add in your comments too. The way we will discuss is, number one, I would like to show some references to various pathologies that we have seen so far. Data still evolving, information is still coming in. We'll know more, and the management will become more refined and more specific. At this time, it is, I believe refined enough, but not fully there. Secondly, I would like to show a reference to FLCCC site, where the I-Recover protocol is present, that I have led, and many other doctors, Dr. Paul Marik, Dr. Pierre Kory, Dr. Tina Peers, Dr. Bruce Paterson, Dr. Yo. They have all worked together to pull this protocol together, which has been working fairly well. The disclaimer I want to make sure; I have no financial or other interests involved with any of the parties I will discuss here. I'm going to discuss Incell. I will discuss the CellTrends. I will discuss FLCCC. I have no interest at all, other than they

are good people who are doing good work, and I use their work to share that information with others. No financial interest, no strings attached. That is the structure. I'm going to share my screen very quickly, and start from the references. Here, if you see this is the FLCCC's site, so you can write flccc.net and that would redirect you to COVID19criticalcare.com, or you can directly write critical care. In here, if you go to protocols, and then if you go to I-Recover management for long haul COVID 19, you will see that this protocol is led by me. The approach outline below is a consensus protocol, based on a collaboration led by Mobeen Syed et al. Whenever you are looking for managing long COVID, the audience here, I'm expecting them to be medical professionals, medical students, nursing students, this area, for example, we are updating it right now. Maybe in another week, this would be further updated with the first line. I'm going to discuss some part of that today. And then, you can follow that here as well. Now, for some of the studies that have shown the pathogenesis which we will discuss some of that today, and then see what could be the clinical signs and symptoms, and then how to manage them.

The baseline studies are the following: number one, this is a study or a paper. "Development of phase two antibodies after SARS-CoV-2 infection." There is a professor here, Professor William. He has done this paper as well. There is another study that I'm presenting here. There was a network hypothesis by an immunologist last century, where they had that, when we encounter a pathogen, we make, of course, antibodies against that pathogen. Then what happens is that, once the antibodies are produced, that are now attacking the pathogen, for example, if you use Omicron or SARS-CoV-2 as an example, as it arrives in our body, we make antibodies against the spike protein and other parts of it. Then, what happens is we need these spike protein, these antibodies themselves to be cleared out, and to clear them out, one of the homeostatic normal mechanism, normal response of our bodies to make antibodies against these antibodies to clear them out. This is a homeostatic function. This is a normal function. However, in some percentage of people, those anti-antibodies, or also called anti-ideotype antibodies, they do not go away after being produced, and now they will continue to attack our own body, because these antibodies look like the original antigen. I'll discuss this a little more later on.

Eric D. Gordon, M.D.
Yes.

Mobeen Sayed, M.D.
The result of that is we would end up with auto-antibodies to ACE2, a result of either vaccination or the infection. And so, this is that network theory that I discussed, where I showed you. Then, continuing with our references. There is a lot of work done by Dr. Bruce Paterson and Dr. Yo, and that work is about the monocytes, and monocytes carrying pieces of spike protein, especially S1 in them for long period of time. This is the fresh paper here. 10 January, 2022. "Persistence of SARS-CoV-2 S1 protein in CD16+ monocytes in post-acute sequelae of COVID-19 up to 15 months post infection." That is a very, very important paper, and they have answered a lot of questions, but I wanted to talk about one important statement here, and that is that their observation is that up to 30% of the people infected could become long COVID. That's a very high number. That is a pandemic in itself.

Eric D. Gordon, M.D.
Yes.

Mobeen Sayed, M.D.
So, not only this is a disaster, but this also puts a lot of burden and responsibility on doctors who are managing chronic diseases to be aware of what is happening, and how the pathologies are evolving, and then how to manage. Because these patients are now part of our daily life, and they're suffering, and the misery just continues. This is a great paper to look at. Then there is this paper, this is the long term changes to blood cells triggered by COVID-19 infection. In this study, the researchers found that it is possible that the blood cells, RBCs, WBCs, these cells can lose their morphological structure, become a little rigid. And most importantly, when BCS do that, then you know that RBC would get stuck in various blood vessels and the clotting would occur, and blood flow disruptions will occur. That is also an important thing to keep in mind. I also wanted to say from this one monocyte, the outcome of this, if I could summarize it, so you have the seed planted in your mind; that is

monocyte carrying S1 and then patrolling the boundaries of the blood vessels will mean that there will be vascular inflammation. And when that vascular inflammation is towards the head and neck region, then there can be a lot of neurological disruptions. Now imagine, inside the blood vessels, we are getting issues with the clotting, and the blood cell shape changes. And outside of the blood vessel, there are monocytes that are dysregulated, and now blood vessel is attacked from both sides, and it is inflamed, and the blood flow is disrupted, and clotting is occurring. That is what is a possible mechanism that is happening in long COVID. Then finally, anosmia. This is a study about anosmia. Anosmia has been a very common outcome as well, during the long COVID. Interestingly, some people's anosmia recovers by itself. Some people, when we give them therapies, the anosmia recovers within a few days to weeks. And for some folks, the paraesthesia or hyposmia continues for months.

Eric D. Gordon, M.D.
Yes.

Mobeen Sayed, M.D.
These are the basic studies that I wanted to first put in front of our audience. So far, so good, Eric?

Eric D. Gordon, M.D.
Yes. I said each one of them, it makes you want to dive deep. I'm going to let you keep going before I distract, and take us off the path, because I want to get through these. These are just wonderful.

Mobeen Sayed, M.D.
Absolutely. I think what we can do is this. Today we'll talk about management, so that a more practical value is in front of the doctors, and they can use it. And then we can do a separate series, where we can go individually for each one of these studies and discuss them in depth.

Eric D. Gordon, M.D.
Yeah, because, just to come again, they tie in. They give us a window and more insight into what we see in chronic diseases of all types. I mean, that's the beauty of this work. It doesn't stand alone. It's tying together information and data that we've been looking at, and just giving us a ways of putting it into more practical, so we can really begin to use this to help patients.

Mobeen Sayed, M.D.
Absolutely.

Eric D. Gordon, M.D.
We'll go with what we can do today.

Mobeen Sayed, M.D.
Absolutely. I'm going to go back, and now I have a presentation as well. I am very drawing oriented too, so every so often, I'll go to my drawing board and draw some of the concepts too, so be ready for some drawings.

Eric D. Gordon, M.D.
Enjoy discussion.

Mobeen Sayed, M.D.
First of all, medical disclaimer. These are not advices. We are talking peers, we are talking doctors, and sharing information, sharing other people's researches and observations of doctors with the medicine. Of course, if this is a patient who's listening, please talk with your doctor. If there is a doctor who's listening, please make sure that, as you do all the time, case by case, the management may differ. Let's start with the possible causes for the long COVID. There is a theory in immunology of virus hit-and-run, where the virus arrives, does some disease, causes some pathology, and in that process, ends up triggering the immune system, dysregulating it, and then the virus is wiped out, but the immune system behind is still dysregulated. It is still wobbly. It is still incorrectly functioning. And that continues

to go on, and that becomes the basis for a chronic disease. That hit and run is possible. I think it is very much possible with COVID. That's one. The second pathology, and I have given the references before, the S1 protein piece is sitting in the monocyte. And again, you may have a lot of question that, "Why are they sitting in there? How long would they continue to sit in there? Will they ever get eradicated? Would they ever be cleared? What is the outcome of the S1 sitting in the monocyte?" All of those questions are in the paper, and the answers to them.

Eric D. Gordon, M.D.
Just to specify for people, this is a piece of the spike protein. We've been talking-

Mobeen Sayed, M.D.
Correct. Absolutely. And so, if you would like, gimme one second. I hope you can see my drawing board now. On the virus, let's say this is SARS-CoV-2. On the virus, the spike protein is divided for its functional pieces. It has a receptor binding domain or RBD. This is where it binds to ACE2. So that is one. This blue part is the ACE2. This is the remaining cell. The red part is receptor binding domain. Then, for the remaining part of the spike protein, there is an S1 unit and there is an S2 unit. And for completion sake, what happens is, when the virus comes and docks with the ACE2, this is ACE2 the blue one. When the virus docs with the ACE2, then the TMPRSS-2, that is a surface protein, on our cells, it cleaves a part of the S1 from S2, which causes this whole S1 and S2 to become separated. Now, S1 stays stuck to the ACE2, and it is actually recycled or downregulated, and brought into the cell for digestion. However, the S2, and please don't mind, my cat is here with me, and it is going to start meowing. It just woke up. The S2 portion, that is then made naked, because S1 is removed. This S2 portion, acts as a fusion protein, and it connects with the cell membrane. And then, it allows the virus to fuse and send the RNA in. This is the normal function. We are talking about this part, the S1 part sitting in the monocyte. Let's say this is a monocyte. This S1 part is somehow hanging out in monocyte for months and months in some people, and that causes this monocyte to become dysregulated, because it has an antigen in it, and it would present that, and the other cell would trigger it, and the monocyte itself would continue to be triggered and make cytokines, which causes it to cause continuous inflammation. Now, the

monocytes, again, they are in three states. I'm so sorry I'm going on with all in these steps. You can stop whenever you like.

Eric D. Gordon, M.D.
No, this is, this is fine. Just one thing that's always interested me about this story is that the monocyte normally has a very short lifespan, I would imagine.

Mobeen Sayed, M.D.
Correct.

Eric D. Gordon, M.D.
And so, there's something about this, once it's in there, that immortalizes it a bit?

Mobeen Sayed, M.D.
Correct. They discuss that in this paper as well. There are a couple of possibilities. Let me complete my blood vessel part, and then I'm going to address that question. That's actually a beautiful question, and it is asked very often. That was my curiosity as well, and we still only have conjecture about it. Let's say this is a blood vessel, and outside is a monocyte. Monocytes usually patrol the boundaries of our tissue interfaces. Blood vessels are interfaces. There are other interfaces as well, in our tissues. Monocytes are patrolling there, and when needed, they can convert into macrophages, they can convert from classical to non-classical, and intermediate. However, if they are irritated by this antigen present in them, then they continue to create inflammatory state around the blood vessels, which causes the blood vessels to become inflamed. And we see a lot of pathology related to that.

Eric D. Gordon, M.D.
Yeah.

Mobeen Sayed, M.D.
Having said, that the question; monocytes are supposed to be either short-lived, or convert into macrophages and be long-lived. How do they start surviving? In this paper, Bruce Peterson and Yo, doctors, they discuss that it is possible that the

continuous irritation of the monocyte makes it not become cleared out, or it is possible that the one monocyte is eaten up by another, as part of the regular homeostatic mechanism, where is where a pinocyte cell is removed by fibrocytosis from another cell. And when it is eaten up by another cell, then the spike protein just transfers to the next one. It is now going from cell to cell, and sticking in there, and keeping the dysregulation continuing. There may be more mechanisms, but these are some that they have done. Now, if I go back here to the discussion, so S1 protein sticking out in the monocyte, and continuing around the blood vessels and inflammatory state is a very important possibility for long COVID. Then, as I showed you the reference before, there is a possibility of the blood cell morphology change, where especially the RBC shape change can cause issues, as we can all suspect.

Eric D. Gordon, M.D.
Is that from changes the membrane lipids?

Mobeen Sayed, M.D.
They say that is that there is a change in the membrane lipids, which makes the cell a little more rigid. There maybe microtubular changes as well. But more importantly, they have observed the shape changes. Exact pathology is still not clear.

Eric D. Gordon, M.D.
Right? Yeah. And again, someday we'll talk about this, and I think I can relate this to mitochondrial. But RBCs don't have mitochondria. They don't count.

Mobeen Sayed, M.D.
There is something going on with the RBCs and the other blood cells as well. And the end result is they become a little more rigid and their shapes become dysmorphic. And so, they're not easy to walk around in our blood vessels or fly around in the blood vessels, and they get stuck and they cause issues, and that would then start the propensity towards clotting as well. Then, the auto-antibodies to ACE2. This is the mechanism that I was discussing before. I'm going to quickly draw this to see if I'm able to present it. Let's say here is a spike protein. And this spike, again, now you know the pieces of it. RBD. This is RBD receptor binding domain. This is S1. This is S2.

Now, we know that we can make spike antibodies against the RBD. Let's say we make an antibody that binds here to the RBD. This is the antibody's binding site. This is the other binding site. We know that there is a light chain and there is a heavy chain. I'm just simplifying my illustration. These are not normal illustrations that we see. Here is the binding domain, and this is the function of this antibody. This antibody is going to now bind with RBD and try to clear the virus and port the virus and do all the biological functions that we're aware of. Now, imagine our body decides to make another antibody. I'm going to make it green. Which is against this antibody. And so, that antibody learns to bind with this antibody. This is the binding domain of this antibody. This was the binding domain, or the binding region of the other antibody. You can now see, look at the red antibody first. The red antibody is connecting with the RBD. If there is anything that is going to connect with our red antibody, then that thing has to look like RBD. Otherwise the binding will not occur. When our body, in all its wisdom, to try its homeostatic normal mechanism, it is called network hypothesis.

When our body makes anti-ideotypical antibody. This green antibody is called anti-ideotypical antibody, because it is against another antibody. And it is against the ideotypical part of the other antibody. But here is a delicate point here. This antibody, the green one, when that is formed, it will have an appearance of the spike protein's RBD. Only then it can bind with the red one. And now, because this green one has the appearance of the RBD, this green antibody can start binding with the ACE2 receptors, because it looks like this antibody's binding region looks like the spike protein's binding region. When it starts binding to the ACE2 receptor, that is where the dysregulation starts coming in. Now, in theory, the paper that I showed you, they saw that the auto-antibodies in hospitalized patient, 93% of them had them. In the outpatient, about 40% had them, and they saw that most of them got cleared out within a couple of months, but in some people, these just persisted and stayed on. Now, will they eventually get cleared out? I think so. But at least by the time they were doing their research, they found that in some people, they were still there.

Eric D. Gordon, M.D.
Yeah.

Mobeen Sayed, M.D.
Now those auto-antibodies are going to stimulate ACE2, and they're going to bind with ACE2 and do the similar dysregulation as spike does.

Eric D. Gordon, M.D.
Right. So, we start having problems with all the functions of ACE2. But you would think that this would go away if we could get the danger signals to go away. Usually, the auto-antibodies should dissipate.

Mobeen Sayed, M.D.
That is correct. This is a homeostatic mechanism. Pathogen comes in, antibodies to the pathogen are made, then auto-antibodies to the antibodies are made. Then all of the system, pathogen goes first, then the antibodies to the pathogen go, then the auto antibodies go. That is the sequence, but in some people, the sequence fails and the auto-antibodies just hang out there.

Eric D. Gordon, M.D.
Right.

Mobeen Sayed, M.D.
And they cause dysregulation. You could ask this question that why, in case of COVID, it ends up with a long COVID with all variety of symptoms and all those issues. And the reason is that the binding region for the auto-antibody is very important. It is binding to ACE2. ACE2 has a hugely important function in our body to manage inflammation. As soon as we disrupt ACE2s, we put body in a chronic inflammatory state. And that is the underlying problems with the chronic diseases: there is a chronic inflammatory state, either triggered by the virus or bacteria or whatever, or by our immune system just doing it by itself. Here we have an auto-antibody, continuously disrupting ACE2s, disrupting the inflammatory system's balancing system and causing an increased inflammation in the body, tendency of the inflammation. Continuing. Then, you would see in many COVID patients, there is

tinnitus. Actually, I have covered right now, and I have some tinnitus which comes and goes. Some patients, it's really horrible for them.

Eric D. Gordon, M.D.
Yeah.

Mobeen Sayed, M.D.
Tinnitus can develop. Then, there could be a balance problem that can develop, or hearing loss that can develop. The reason for that is vestibular cochlear dysfunction, in which one thought so far is that, because the blood vessels to this area are very delicate and small, these are capillaries, they can become easily clogged by the other mechanisms that I discussed. One second, if I back up. We also know that COVID causes clotting tendency too. If we put that all together, it is a possibility that vestibulocochlear system, especially hair cells, are not getting their oxygen correctly and nutrition correctly, and the waste products are not cleared out correctly. And that causes the disruption in their function, and tinnitus occurs. If that is happening to the hair cells in the semicircular canals, then the balance issues would occur. And if this damage is permanent, then the hearing loss would occur. This is a problem for long COVID as well. The signs of it starts within the COVID, but then they start persisting.

Eric D. Gordon, M.D.
Yeah. And again, just, we see this in many chronic illnesses, when the red blood cells start to stiffen a little bit, and you have a little bit more fibrinogen floating around. It doesn't take much to make that very difficult for that red blood cell to get across, out of the blood vessel.

Mobeen Sayed, M.D.
Absolutely. Absolutely. And then one of the outcome, it could create outcomes in all parts of the body, but there are some outcomes which become very, very prominent for us, and we start noticing them.

Eric D. Gordon, M.D.
That's right. The more narrow the area, the harder it is. Yeah.

Mobeen Sayed, M.D.
Correct. And then, before I go to the GIT and other, there is one bullet point that is missing here, and that is anosmia. Anosmia or hyposmia are very common complaints as well, where the patient stops or has reduced smell, or they even have phantom smells. They say, "All of a sudden I smell coffee, or I smell a bad smell." And that is because they've developed hyposmia. I had shared a research there before, in the early part of the discussion. The researchers had shown that the epithelium of the olfactory bulb, not the neurological pieces or the olfactory nerve, but the epithelium of the olfactory bulb and the supporting cells, they become infected, and the local inflammation presses on the olfactory neurons and dysfunctions them, or causes dysfunction of them. Plus, because there is an inflammation of the epithelium, and if there is damage to the epithelium, that damages the whole system's function. Anosmia is also another important thing to keep an eye on.

If I'm going to now continue, long COVID is a set of symptoms, syndromes, which can be clustered in various parts, and in some patients, they can be combinations of them. All of them, some of them. Long COVID could be just neurological. GIT, respiratory, musculoskeletal, cardiovascular, autonomic, or a combination of them. I have seen mostly combinations of them. And the most disturbing for the patients are neurological, where there is brain fog. There is lack of concentration, lack of ability to process, cognitive decline, possibly anosmia, tinnitus and so on. There lot of neurological issues that patients find really bad, and they cannot perform their functions correctly. While the tragedy at this time is that they're not recognized very well, and so others think that they're just making it up, or this is just psychological, and that makes it even worse. Now, the disease's course has hills and valleys. Patient feels better. Patient feels bad. They feels better, they feel worse, and so on. They just keeps going through that process. And one thing I forgot about neurological; Bell's palsy and its recurrence is also a very important part of neurological disruptions. Gillaume-Barre is mostly acute, but Bell's can actually be fluctuating in post-COVID for a long time, and even with the vaccine for a long time. Hills and valleys, persistent

low intensity, persistent high intensity, then temporary improvement with intervention, then permanent improvement. This is very important, that sometimes, as we discuss the protocols, you would see that patient has improvement, and then they have a relapse. And that means you have to try a different avenue. There are multiple pathologies. All of them give rise to inflammation. So, when you control the inflammation, you would see a good response, but now what is the underlying pathology that needs to be addressed? You may have to do some research, some exploration by trying various management possibilities to see which one works.

Eric D. Gordon, M.D.
This is a beautiful slide, because I think this is what you see when you try to treat chronic Lyme disease or chronic fatigue, but this laid it out just so simply, and just made it so obvious, because you're dancing with the immune system. It's like MS. Just the way MS was considered a psychological disease till we got an MRI, until we could really see that these people had something wrong with them, or we could see the abnormal proteins in the CSF. But all these diseases have been delegated to the psychiatrist, much to the chagrin of the patients. I think that's what increases the debilitation, is when you're just not respected by anybody.

Mobeen Sayed, M.D.
Absolutely. I have a very young patient. Not my patient, but family member's. She's a patient of long COVID. Young woman, very dynamic, very energetic, looking forward to her life. And all of a sudden, she got post-vaccine injury. And one big part of that, and is still persisting, but thankfully has almost 90% gone, was brain fog and concentration difficulties, and ability to work and cognitive decline. And she would tell me that when she would say this, to her superiors at her workplace, that, "I'm having these difficulties," her peers would laugh. I mean, they're her age as well, so they'll just make fun of her and say, "You're just making it up." Her management would not even consider. They would say, "Talk to the doctor," and doctor would say, "This seems like a psychological issue."

Eric D. Gordon, M.D.
Yeah.

Mobeen Sayed, M.D.
This is how bad it is.

Eric D. Gordon, M.D.
Yes, yes.

Mobeen Sayed, M.D.
So, you are working with the chronic diseases. I suspect this is similar everywhere with-

Eric D. Gordon, M.D.
This is everywhere. It actually has improved tremendously over the last 20 years. If you can imagine it being that's bad now, it was impossible in the past. Patients were generally just ignored. They lost their families, their friends, because nobody would believe them, but what's really so important here is to understand that when symptoms wax and wane a lot, just remember, your immune system is dancing with you. People have this concept of the body as a fixed thing, and our medical pictures are broken legs and bullet wounds and heart attacks that happen in the moment, and not the waxing and waning of your immune system, how it dances with the world. You have a good day, you have a bad day, you're in a good mood, you're in a bad mood. It's life. It's just so important that people remember that, when you're dealing with these diseases, you're just seeing a reflection of what it is to be human; that there is change every day.

Mobeen Sayed, M.D.
Absolutely. Absolutely. With this: management considerations. Of course, like any chronic disease, the considerations are, there are prophylaxis that should be done within the disease itself, so that the chances to become long COVID are less. And what I've seen is that Ivermectin has been very useful. Treatment with steroids as soon as the viral phase is over is also very important to start controlling the immune system from going totally dysregulated. And then, other prophylaxis, for example, vitamin D and other such substances should be in the correct amounts. That is

important. That is one consideration. This consideration is more than for the chronic disease doctors. This is mostly for acute disease managing physicians, because they have to take care of it, that patient doesn't become, or has less chances of becoming long COVID. Then, neurological component, sometimes it's not just very easily handled with the management. And so, one has to look into various techniques, including lymph flow massages, which some people think it is crazy science, but this is actually important, because it helps move the lymph a little faster, and that helps clear out some of the debris that is collecting a little faster, and move things a little more.

Eric D. Gordon, M.D.
Yes. One of the difficulties is, when people first get ill, they're often not very sick, and so it's very hard to say, "Try the Ivermectin and the Luvox. I know you don't need it today." Though I think the ivermectin, I've seen turn people around overnight, when they're moderately ill. Sometimes. Doesn't work all the time. But it's worth trying. But it's people understanding that you don't want to wait until you are in the second week and very sick to start doing things.

Mobeen Sayed, M.D.
Correct.

Eric D. Gordon, M.D.
Try simple, safe things first. I know that you're not that sick. It does feel like a cold. But this is a cold that can get a lot worse fast.

Mobeen Sayed, M.D.
Correct. Absolutely correct. So then, in some patients, pulse therapies on monthly basis may be needed. I've seen that, for the management. Sometimes continuous management helps, but in some patients, continuous management does not help, and you've got to give a break, and then resume and then break and then resume. And that slowly helps them to come out of this situation. Sometimes, pulse therapies are more important than continuous. And then, disease usually goes in remission within a week or two. Then the patient goes and bounces around and does their

thing and be happy, and then they come back with the relapse. And then, it seems like couple of months are needed for a continuous therapy. And what happens is, one of my friend doctors were saying that usually the benefit starts appearing in sixth, seventh week, but patient doesn't wait for six, seven weeks. They just want it today. "I started my medicines today, I should feel better." There is a lot of close consultation with the patient to have them go through this journey.

Eric D. Gordon, M.D.
Yes. Patience.

Mobeen Sayed, M.D.
Patience. Absolutely.

Eric D. Gordon, M.D.
And just one other thing: what we see all the time in chronic illness is toxicity is what's keeping a lot of people stuck in chronic inflammation. And just as you're saying, the lymph flow, the TMJ, the chronic neck tension. We spend our lives sitting at desks with our arms up, typing. That is the things that we don't usually attend to, because if you have a cold, it doesn't matter. But when you have chronic inflammation, detox is critical.

Mobeen Sayed, M.D.
Absolutely.

Eric D. Gordon, M.D.
And attention to structure, through chiropractic, osteopathic, all these different ways of dealing with the structure will help. Again, it's not the magic bullet for most people, but it's important component to getting these medicines, to get people where they want to be with these therapies.

Mobeen Sayed, M.D.
Absolutely. And now that you're saying it, I'm looking at my shoulders. I'm sitting like this, because my chair arm rests are elevated, so I'll try-

Eric D. Gordon, M.D.
One of these days we have to talk about your ergonomics. Yes, yes.

Mobeen Sayed, M.D.
Absolutely. These are some considerations. The most disabling and disturbing things for the patient are neurological symptoms, and then the cardiac symptoms. Focus on those and help them through those. Now, let's look at general idea for how to management. The basic approach is, and this approach changes, but I want to put my thought out. And of course, folks who are in the chronic disease management, they know better than me. And that is that-

Eric D. Gordon, M.D.
I'm not so sure. You are too modest, but okay.

Mobeen Sayed, M.D.
There is a propensity for inflammation that is causing damage. And what I've seen is that many patients, let's say that there is inflammation of the cranial nerve, and the swollen cranial nerve is now slowly getting damaged. If we don't control the inflammation, then it is possible that the damage becomes permanent, and then we can do whatever, it's not going to be reversed. There is an immediate need to keep the tissue damage from happening or to reduce that as much as possible, while you figure out what is the basic pathology to address. In the beginning, steroid therapy is important. I have seen many protocols which deviate from steroids and they want to use more specific heme or chem blockers. That is interesting as well. What I've seen is that their side effects and their specificity has its own issues. Generally, low dose steroid for a couple of months is something to keep patient on while you're figuring out what else is wrong, and to fix it. This reduces their damage while you are treating them. So now, labs. There are a couple of companies whose labs have been very much used by the chronic long COVID or post-vaccine injury patients. One is the CellTrend. It is not in the US. It is I believe European company, but they do these auto-antibodies for ACE2, and many other parts. They have a beautiful profile of auto-antibodies that they do.

Eric D. Gordon, M.D.
Oh yeah. I'm not aware of them. Thank you. This is very interesting. Yes.

Mobeen Sayed, M.D.
You can go to, I believe Denmark. Celltrend.de/en if I remember it correctly. Let's actually very quickly see it, so that we can see. And again, I have no financial. Celltrend.de/en. I don't know if it is CellTrends or CellTrend, so my apologies if I come up with some weird site here. Okay. We are on the correct site.

Eric D. Gordon, M.D.
Looks right. It looks right. Yes, yes, yes.

Mobeen Sayed, M.D.
They have a great profile of auto-antibodies that they do, which are not available here. You have to work through their site with them. But I am seeing so many patients. I have interviewed a patient, Sean. He has been working with them as well, and got his profile.

Eric D. Gordon, M.D.
No, that'd be very interesting. Because I'm very interested in future use of plasmapheresis for people who just aren't responding, and this would be a-

Mobeen Sayed, M.D.
Yes.

Eric D. Gordon, M.D.
Big help.

Mobeen Sayed, M.D.
Correct. That is one. The other one is the IncellDx. Once again, I have no financial interest of any sort. IncellDx have created their own set of tests. And with that, they create a long COVID index, and they say, "If the index is here, then you need

management this way," and so on. They have that as well. I think it is $360, 70. I do not know if the insurance covers it, but again, somebody who is in trouble might want to.

Eric D. Gordon, M.D.
It's well worth it. I'm actually doing that on almost all my patients who I'm stuck on, whether they have long COVID, or just chronic fatigue or chronic Lyme or whatever. I think it's useful. I've done lots of cytokine tests over the years. I do it for a few months, and then I realize I'm not doing anything with the information and I stop doing it. And then, it looks exciting again, because we love numbers. But I have to admit the Incell panel has been helpful.

Mobeen Sayed, M.D.
Yeah. Once again, no-

Eric D. Gordon, M.D.
Yeah, no we're not advertising. No kickbacks, no promotions.

Mobeen Sayed, M.D.
In addition to those, one can look for Interleukin six, Interleukin 12, fecal COVID test for any remnants of the COVID wedge-

Eric D. Gordon, M.D.
That's another test I wasn't aware of.

Mobeen Sayed, M.D.
Yeah. Again, it is not available everywhere, but if possible, fecal testing for remnants, because there are studies which show that debris of the virus can continue to stick in the GIT cells for up to 59 days after the symptoms have subsided. And now, there are diverse studies from there. Some studies says that presence of those broken RNA pieces inside the cells help build the immune system's strength against the future exposure by affinity maturation. And we all know that that is a process where the antigen is exposed through follicular dendritic cell to our B and T cells, and they

become more and more mature in attacking this antigen in the future. And some studies say that this continuous presence of messenger pieces of RNA are actually disrupting the local immune system, and causing local inflammation, which then creates a lot of GIT-related long COVID symptoms. So far, the studies have not shown viable virus, but they have shown inviable pieces of virus, which may be immune dysregulating. This also could be a problem with the microbiome as well. And that restoration would be useful as well.

Eric D. Gordon, M.D.
Yeah.

Mobeen Sayed, M.D.
General approach to the COVID is basically two branches. One is to see if our immune system is dysregulated. And the other one is to see if the virus pieces are sitting somewhere, or a third one will be a combination of both. And so, whatever is the basic pathology, it's going to fall in these categories. Either the virus pieces are there, or the immune system is dysregulated, or the both of these are present together. And then based on that, there are a few management approaches. For example, if immune system is dysregulated, then that dysregulation could be of multiple types and outcomes. For example, mast cell activation syndrome could be unmasked by this dysregulation. Patient who actually has MCAS, mast cell activation syndrome, and is not aware of it, they all of a sudden might start having MCAS, and that is an unmasking of the MCAS. In some patient, there is even a triggering of the MCAS as well, and the patient of MCAS, who were already the MCAS patients, they may get flare ups. That is one possibility. Second possibility is, as I discussed before, that may not be here in this diagram, is the inflammatory state of the monocytes and the blood clotting issues, which are also because of the auto-antibodies. This is why I believe that this discourse of saying the spike protein goes around in the body, causes an issue, is not possible because spike proteins are picked up by the immune system. It is the auto-antibodies that are freely allowed to circulate in the body, and if they're ideotypical antibodies, anti-ideotype antibodies, then they would act like spike proteins, and they could behave as a moniker for spike protein, like spike protein. If it is an MCAS-like signs and symptoms, then MCAS management should

start, and the FLCCC protocol, I would show you there, the management approach is present. If it is not that; if you suspect it is not MCAS-like behavior, then steroid and ivermectin with low-dose naltrexone should become the first line. I have seen this to be repeatedly the gem of the prescription, the first line of prescription, and think about it that steroids would keep the inflammation in control, the damage in control. Ivermectin; there is a study I can probably look it up right now, in front of you, and you might find me Googling it. It's interesting. In vitro study, ivermectin binds with spike protein and ACE2. I believe this is the one. So Ivermectin docks to the SARS-CoV-2 spike receptor binding domain attached to ACE2. This is an in vitro study, and here they have these beautiful diagrams. If you see here, this is the ivermectin molecule. This is, I believe, ivermectin molecule dock, with the SARS-CoV-2 spike receptor binding domain bound with ACE2. Here, this triangle is the viral spike protein. This arrow is the ivermectin. This little thing. And the remaining this molecule is ACE2. Ivermectin disrupts the interaction of ACE2 and the spike protein, at least from this in vitro model. And if that is the case, imagine if we have auto-antibodies. And you give ivermectin, it is going to bind with that auto-antibody the same way and disrupt it, just like it disrupts the spike protein. This is such a beauty.

Eric D. Gordon, M.D.
Yeah, no, that is beautiful. We see it work clinically, and it's so nice when you have a story that makes sense.

Mobeen Sayed, M.D.
Correct. Correct. Eric, one of the requirements I have from myself is that, when I present something, I present that, based on some mechanism, some known science, so that we can think about it.

Eric D. Gordon, M.D.
Yes.

Mobeen Sayed, M.D.
And of course there are doctors, there are researchers who can hypothesize, and then go find the solutions for that. I am actually using someone's hypothesis and the solution, and presenting them. Steroid would keep inflammation under control. Ivermectin would help with if the spike protein is hanging around, they would help with that. If the anti-ideotype antibody or network hypothesis mechanism is occurring, ivermectin would help with that. We also know that ivermectin helps with the nuclear factor, K-beta or Kappa-beta light chain beta disruption as well, and then helps with the inflammation. That would be there as well. And then finally, I've written fluvoxamine here. Since then, we have changed it to naltrexone. Low dose naltrexone, not naltrexone, but low dose naltrexone has been working like magic. What you do is you start with these three, and then three, four weeks later, you start tapering them. Take steroid out first, then take ivermectin, then leave low dose naltrexone for some time and remove that too.

Eric D. Gordon, M.D.
Yeah.

Mobeen Sayed, M.D.
Worst case-

Eric D. Gordon, M.D.
We have people on low dose naltrexone for years, with excellent results.

Mobeen Sayed, M.D.
This has really been great. Whoever started this, the naltrexone's use, kudos to them, but that has really helped. Now, if there is a possibility of some virions or broken pieces still hanging out somewhere, then ivermectin once again will help, because it would keep binding with the spike proteins and keep disrupting the spike protein from interfering with the other immune systems. And then, of course, we have talked about vaccines as well. Eric, you and I talked about too. Anyone who is at risk, although nowadays the efficacy of vaccine has become an issue with Omicron.

Fortunately, Omicron itself is becoming milder too, but please speak with your doctor to figure out if vaccines are an important part. Now, management, I'm just going to recap. This is the first line. On the I-Recover, this would be updated soon, so I am taking that part and presenting it here before it has become updated. In a few days, it will be. The first line, prednisolone, and low dose. 10 to 15 milligram, and you continue for two, three weeks, and then you taper it by two, three days of five milligram reduction. Then another two, three days of five milligram reduction. I usually try one week each. Starting with 15 for two, three weeks, then one week or 10, then one week or five, and then stop. But if you have a tapering mechanism that you prefer and like, there is no hard signs on the tapering, so you do what you feel comfortable. In addition to that, Ivermectin 0.2 milligram per kilogram body weight. It's not the ivermectin need for higher concentration, because we're really not attacking the virus itself. It's just the binding with those disrupting auto-antibodies or with the spike protein, if that is present somewhere.

And then low dose naltrexone, begin with one milligram, and then it can be escalated. Just be in close contact with the patient to make sure that their side effects and their situation is managed. This is the first line. Now, before I go to the rest of this, what I'll do is this. There is a lot more here. What I'll do is this; for the remaining part of the discussion, I would then go here to say, after that first line, it is possible to try fluvoxamine for neurological situations, and I have seen that in some people, fluvoxamine can actually increase the neurological issues. And if that is the case, we stop. And we also know that fluvoxamine is not being given for psychological or psychiatric condition here. Instead, this is the Sigma one antagonism that reduces inflammation in the brain. You can think of fluvoxamine as a partner to ivermectin. Ivermectin cannot cross blood brain barrier, so that stays in the body, and fluvoxamine can go there and help with the inflammation.

Eric D. Gordon, M.D.
I'm very interested in the dosing, because for the treatment of acute COVID, they've been talking about the 100 milligrams twice a day, which again, many people can't tolerate, and I've often started people at 50 milligrams, and I've thought even 25 is enough for some. And so, it really looks like, from the data there, that dosage for

what we're trying to accomplish here can be much lower than what's used for treating depression.

Mobeen Sayed, M.D.
Absolutely. Even a half of 25 milligram.

Eric D. Gordon, M.D.
Yeah.

Mobeen Sayed, M.D.
Even 12.5 milligram seems to be fine as well.

Eric D. Gordon, M.D.
Yeah. That's clinic. I've gone that way, because people just couldn't tolerate it. I figured that it was just they picked the 100 milligrams twice a day dose, just because that's what is approved.

Mobeen Sayed, M.D.
Correct. Correct. You're correct. Steroid therapy is here. Then if you wanted to see that macrophage activation syndrome, and how do we manage that? Here it is: vitamin C, omega three, atorvastatin, melatonin. And then, if you wanted to see how to help with the MCAS, then that Dr. Tina Peers has been very good in putting together this part of the protocol that is here as well. My point is, after that first line therapy, for the remaining part, you can actually see the management protocol here. You can refer it and you can help further.

Eric D. Gordon, M.D.
Right, right, right, right, right. Yes.

Mobeen Sayed, M.D.
This will be updated in a few days with the first line showing up here, the first line that I just presented.

Eric D. Gordon, M.D.
Right. Yes. I didn't see the maraviroc. Did I miss that?

Mobeen Sayed, M.D.
Maraviroc. Maraviroc is something that, in my opinion, that is in the extreme cases.

Eric D. Gordon, M.D.
Okay.

Mobeen Sayed, M.D.
Number one. Number two; maraviroc has a larger set of side effects, and so needs very good care from the physician. Number three; maraviroc could be expensive, as well.

Eric D. Gordon, M.D.
Oh yes it is. Yeah.

Mobeen Sayed, M.D.
Maraviroc is an option. Dr. Yo's group, Dr. Bruce Paterson's group, they swear by it, that maraviroc in all refractory long COVID, it works like magic for them. I haven't used it. I haven't had a need to use this. But then, I do not have a refractory long COVID person as well. Most of them recover with the remaining protocol. Maraviroc is an option, but I don't have it here, and I think we'll keep it as a side note, that in refractory-

Eric D. Gordon, M.D.
Refractory. I'm on part of their referral list, but because the nature of my practice, people look at the website, they see we treat chronic disease. We tend to get the ones who are failing, and-

Mobeen Sayed, M.D.
Maraviroc works there.

Eric D. Gordon, M.D.
Well, even then, it works, but not quite as miraculously as advertised. It does work, but it takes a long time. That's another thing.

Mobeen Sayed, M.D.
Yeah. I think balancing thing that should be done is that what I see sometimes in these protocol discussions to say, no steroids, just maraviroc. And I think that is not entirely the right approach. Steroid has broader implications for the immune system. And because there is so much dysregulation, maraviroc alone is a very specific part. Overall help with steroids is necessary.

Eric D. Gordon, M.D.
I think one of the things we run into is that, when you start getting into the very sensitive patients, there are many of them who can't tolerate even tiny doses of steroids, even one milligram.

Mobeen Sayed, M.D.
That happens, absolutely happens.

Eric D. Gordon, M.D.
They just can't sleep. They get so agitated. And so then, we have to do other things. And I'm also noticing, while we're talking here, is that the atorvastatin, because Dr. Paterson's group is in love with pravastatin-

Mobeen Sayed, M.D.
We would be updating this as well. Pravastatin is fine as well. Atorvastatin-

Eric D. Gordon, M.D.
No, no. I've used both. I mean, some people feel atorvastatin, because it gets into the brain, might be more useful. It's just interesting. And just the dosing, between 10 and 40 milligrams, again. But yeah.

Mobeen Sayed, M.D.
Melatonin is very interesting as well. And once again, on the wrapping up part, I would suggest that, if the patient is refractory before maraviroc, there may be an attempt for pulse dosing. Stop things and the then start again in a couple of weeks, and see if that works. If that does not, then of course maraviroc is one more option, but this is the management approach.

Eric D. Gordon, M.D.
Yeah, no.

Mobeen Sayed, M.D.
My apologies. I forgot about anosmia. 0.3 milligram per kilogram body weight ivermectin for three days in majority of the patients, anosmia is removed, is gone. That's just a beautiful thing. I've seen it so many times now. My own mother-in-law had anosmia, and she had it for weeks, and I said, "All right, take this." And within three days she was fine.

Eric D. Gordon, M.D.
Yeah. I love the things that you've seen work, especially in people with long term cases, because one of the things that was so difficult in the beginning or still is, is that it is so many people who get acute COVID do so well. It's only when I saw people who were really sick respond within a day or two to ivermectin that I really truly believed how well it worked. Because when you have self-limiting illnesses, many things look like they work, so it's always exciting to see that. This is a wonderful tour de force of how to approach long COVID, and I don't think we mentioned, or maybe you did, but in my experience, I've treated pretty much vaccine injury, vaccine reactions, the same way as long COVID, because I really do think it tends to be that spike protein activating the immune system.

Mobeen Sayed, M.D.
It is actually the same management.

Eric D. Gordon, M.D.
Yeah. Yeah. Yeah. I just wish that we could get the powers that be to acknowledge it, just so we could treat it, so it wouldn't have to be as much of a disaster for people who have the problems. We need the vaccines for old people, for certain. I mean, death rates are just so dramatically different. It makes me crazy when people tell me that it didn't make a difference. It's just so different, but-

Mobeen Sayed, M.D.
You're very correct. One tragedy is that on one side, the good news is that long COVID is acknowledged, and insurance can cover it. Vaccine toxicity or injury or whatever way you want to put it, that is not covered.

Eric D. Gordon, M.D.
No, and it's very difficult. The database works really well if you had an allergic reaction, but if you had anything other than that, it's very difficult to navigate and to report.

Mobeen Sayed, M.D.
And so people are getting vaccine injured, and then they're having to, one, go through that miserable journey of getting back to normal, and second, they have to pay out of their pocket to get all this.

Eric D. Gordon, M.D.
Yeah, no. But that's another story. The economics of chronic illness is not nice. I am responsible for a lot of that, because most of what we do is not covered by insurance. Those of us who are in this field a long time, we often start off taking insurance, but along the way we stop, because we get massacred and threatened by the insurance companies and Medicare, because you do things that they don't approve of.

Mobeen Sayed, M.D.
Correct. Absolutely correct.

Eric D. Gordon, M.D.
Medicine is complex in America. The politics of it is a whole other world, but I just want to thank you. This was an amazing journey through just treating long COVID and understanding the etiology. That's where I would love to come back again, and just go deep on these things, because they illuminate the immune system, and the more we treat chronic diseases, it is all about the immune response. One of the things that we talk about on this program a lot is also the psychological component, and not in the sense that you're sick because you're depressed. I think is one of the worst things we do to people is make them victim, but illness causes the chronic inflammation in the brain will flare depression, will cause obsessive compulsive disorder, and will cause anxiety to get worse. They're all self-protective mechanisms. The body's trying to protect itself, and when you're constantly inflamed, just like the histamine response, great self-protective mechanism.

Mobeen Sayed, M.D.
Correct.

Eric D. Gordon, M.D.
Be transient.

Mobeen Sayed, M.D.
Absolutely. I think, at some point much you should come join me in my live show as well, and we talk a little about chronic diseases. It's very, very useful for people to hear how to manage and approach it and what to expect.

Eric D. Gordon, M.D.
It would be a pleasure. I said I've been doing this for a long time, but I learned to think differently about it after working with Dr. Navios, but especially just reading his early work about mitochondria and their response to danger, because so much is when the body perceives danger, it hardens its defenses. Those shoulders come up.

Mobeen Sayed, M.D.
Absolutely.

Eric D. Gordon, M.D.
We get into trouble. Those cell membranes begin to get stiff, and it's just what happens. And it's a good protective move, but not one to stay. That is the problem. I just want to, again, thank you so much. This was an amazingly deep and informative lecture, and for all the patients out there, it's just important to remember that, if you can educate your physicians, and let them listen to this. Watch Dr. Mobeen's series. I don't get to watch enough of them, but every time I do, I go, "Oh my God. So much more immunology details that I thought I knew." Just whole other pieces that open up, and that is what is missing, because no matter how well you were taught immunology, if it was more than five years ago, you are already so out of date, and not understanding. I think that's why physicians, if there's one thing they should be constantly going back to is relearning immunology. Because it gives you the tools to think-

Mobeen Sayed, M.D.
Absolutely correct.

Eric D. Gordon, M.D.
About what you're doing. Your programs, they're for the layperson, but I find them amazingly educational, so I just want to thank you so much.

Mobeen Sayed, M.D.
Thank you very much. Thank you very much for having me. Thank you for discussing this. Let's have a series of going deeper into various etiologies and pathologies and meet again.

Eric D. Gordon, M.D.
We will. Okay. Thank you so much.

Mobeen Sayed, M.D.
Thank you. Bye bye for now.