

Bob Falcone:

I'm Bob Falcone, CEO of the Columbus Medical Association and Affiliates. Today, we have a panel of experts to discuss the longterm sequela of COVID-19 infection, also known as the COVID-long haul syndrome. Next, I'd like to spend some time with Dr. Nathan Brummel. Dr. Brummel is an Associate Professor of Medicine, Critical Care, Pulmonary and Sleep Medicine at the Ohio State University Wexner Medical Center. In addition, he has a research interest in the critically ill and vulnerable patients, who have sequela following their disease process. Dr. Brummel, welcome.

Dr. Nathan Brummel:

My pleasure to be here. Thanks for having me.

Bob Falcone:

Yep. We're talking about COVID. Again, early on, most of us thought that it was a hospital problem, an intensive care problem. What were you seeing, or what are you seeing in critical care units?

Dr. Nathan Brummel:

Of late, the number of patients with COVID in our ICU has decreased significantly, especially since the first part of the year when the major peak hit. What we're learning is that those who survive, not only the ICU, but a hospital stay, and even those who weren't sick enough to come to the hospital, are surviving with long-term symptoms. While this is a new syndrome, we've actually have a pretty large body of literature focused on long-term outcomes after sepsis, for example, that that can inform us in how to help care for these post-COVID patients, also known as the COVID long haulers, as well, if you will.

Bob Falcone:

The long haulers don't necessarily need to be in an intensive care unit. In fact, I suspect most of them have never been hospitalized.

Dr. Nathan Brummel:

That's correct. Only 1%, I think, of patients end up with COVID ended up in an intensive care unit, although it didn't really feel like that to myself and my colleagues at the time. About 5% ended up in the hospital. The majority of patients who were sick with COVID ended up not needing acute care hospital ICU services.

Bob Falcone:

When they're in the hospital, in the critical care unit, COVID is different from other acute respiratory distress syndromes. How does it differ? Why does it act so weird?

Dr. Nathan Brummel:

Yeah. There was a lot of debate in the ICU community about whether this is ARDS, something we've known for over 59 years, or if it's something different. I think where the dust has settled on that, is that it is ARDS, except what we're seeing clinically is, it sure is most severe types of ARDS that we have seen. Patients stay severely hypoxic for a long time, on average. We're looking at patients who typically are intubated sometimes as long as two or three weeks before we're able to get them off of the breathing machine, or it's safe enough to perform a tracheostomy.

Bob Falcone:

When they do get sick, they stay sick. And when they come out, do they have persistent pulmonary dysfunction?

Dr. Nathan Brummel:

Yeah. We're seeing a couple of things. I think, first is that the mortality from patients who end up on a ventilator is a little bit higher than we've seen typically with ARDS. Instead of the usual 30 to 40% with run of the mill ARDS, we're talking in the 50 to 60% range. It's a lot higher mortality. The second is, when ARDS was initially described, there was this acute phase, but then a later phase of pulmonary fibrosis or scarring of the lung, and we're seeing a lot more of that. It had gone away over the last 15 or 20 years, as we started to adopt better ventilation strategies. When these patients are so sick, for so long, it's very difficult to get them off the ventilator. A lot of them do develop this chronic scarring, which is a combination of probably the severity of their underlying lung injury, in combination with how difficult it is to ventilate some of these patients.

Bob Falcone:

I suspect they respond at least a bit to pulmonary rehab, and some of the things we do is outpatients for people with fibrosis.

Dr. Nathan Brummel:

Right. We think so. We're still learning about whether this chronic fibrosis will heal itself, or whether it is progressive or what. My colleagues, Jeff Horowitz and Elliot Crouser, and I, have a small grant to study some of this fibrosis in patients here at OSU. You hit on a third thing of the rehab strategies. In critically ill patients, we still don't have any effective rehabilitation strategies, in terms of improving physical function. People will regain about two-thirds of their ability to walk, and have their cardiopulmonary fitness will improve over time, but after about a year or so, that plateaus and doesn't tend to get any better over the long-term. It'll be interesting to see, since we're still in the early stages of COVID survivorship, if COVID will demonstrate a similar picture.

Bob Falcone:

Yeah. I suspect that as these people age, and their pulmonary reserve decreases, we're going to see a number of pulmonary cripples as a result of severe ARDS.

Dr. Nathan Brummel:

I think there will be long-term sequelae. This will affect hundreds of thousands of people across the country, and many more worldwide. We're working here at OSU and elsewhere around the country to understand better these problems, and figure out ways that we can prevent them in the ICU, and rehabilitate people afterwards.

Bob Falcone:

Let's talk about the patient who was never hospitalized, had a mild case of COVID, or maybe a moderate case, maybe they saw a doctor, or didn't, and they show up two, three, four, five weeks later with persistent symptoms. What are we seeing?

Dr. Nathan Brummel:

The major thing reported so far in the literature, and again, it's very case series, essentially. We don't know a ton about it. The primary symptom that folks are having is fatigue. In other words, they just can't get up and get going like they used to. Other folks note some brain fog, or some thinking and memory problems that have a range of severity, in addition to those physical problems that I alluded to earlier, just the inability to exercise and carry out their daily activities. We're still learning. I think these things exist on a continuum. Those that were the sickest for the longest, will probably have more severe symptoms than those who were able to go through their COVID experience while they were still at home. Again, they're going to exist on a range. We still don't understand that duration of symptoms that people have, how long and how severe they will be, we're still learning.

Bob Falcone:

A number of these patients are going to show up at the primary care provider's office, and some of them will have shortness of breath and chest pain. How would you recommend working those patients up?

Dr. Nathan Brummel:

Sure. We're still trying to, again, optimize the right way to do this, but I think routine, good medical care workup of dyspnea, starting perhaps with a chest x-ray to see if there are persistent infiltrates, or something else that could be going on. The shortness of breath piece could be related to either persistent lung or heart dysfunction, or general deconditioning from being sick. If you got pneumonia and you were laid up in bed for a week or two, you would have shortness of breath that would last awhile, as well. We're still trying to tease out on a specialty standpoint from both a pulmonary and a cardiac standpoint, how much long lasting damage there really is. The patients anecdotally, that I'm seeing in my clinic, who have shortness of breath, actually tend to have pretty normal pulmonary function tests. They have pulmonary infiltrates that do tend to get better over time. I think close watching is advised at this point. There aren't any medical therapies, steroids or anything like that, that I think will be helpful, at least in these early stages of their clinical recovery.

Bob Falcone:

If they have shortness of breath, it's often subjective rather than objective [crosstalk 00:08:48]

Dr. Nathan Brummel:

I think there's actually something... Whenever someone presents with shortness of breath, we worry about heart, lungs, and overall conditioning. I think working through the possibilities there are important.

Bob Falcone:

If the chest x-ray is normal, their pulmonary functions are normal, and their sats are okay, we watch them?

Dr. Nathan Brummel:

I think I would recommend watching patients, as well as recommending resuming exercise. We have no reason to think that that is harmful at all in the recovery of these patients.

Bob Falcone:

That's probably important to build up their stamina.

Dr. Nathan Brummel:

Absolutely.

Bob Falcone:

If you get sick, you lose your stamina pretty quick.

Dr. Nathan Brummel:

Absolutely. Yeah.

Bob Falcone:

Great. Any other things that we should be talking about?

Dr. Nathan Brummel:

I think there's a couple of other things. You may have already mentioned the mental health aspects of this, which we see patients present with symptoms that are similar to post-traumatic stress disorder. There's certainly a lot of anxiety. I don't want to make a comment about how that is different from what we see traditionally in patients who haven't been this sick. If we look at PTSD, the classic phenotype, maybe what comes to mind is a veteran who's concerned about a war time experience. The difference between what our acute and critical illness survivors are seeing, or what they face in terms of anxiety and post traumatic stress disorder, is that as opposed to looking at something that happened in the past and being concerned about that happening again, they're actually worried about something happening in the future. Every cough, every sneeze, is a sign that, "Oh my gosh, I may be getting sick like I was when I had COVID, again." It's very difficult to manage those symptoms, because they do differ from what I think many of us see in our daily practices.

Dr. Nathan Brummel:

What we are learning as part of larger collaboratives, such as the Society for Critical Care Medicine and my research group in the Critical Illness Brain Dysfunction and Survivorship Center, is that support groups can actually be very helpful. In other words, groups of patients and family members who've been through similar experiences getting together and just sharing the experience. One of the things that that happens to sepsis survivors is they get told, "You survived your illness. You survived being so sick, and now here you are, and you're all better." We know that's not the case for the majority. Being able to be with a group of people they can just talk and listen, and share what life is like, after having been through an experience like the ICU, like a severe sepsis episode with COVID, is important.

Bob Falcone:

That's great. Thank you so much for your time.

Dr. Nathan Brummel:

Absolutely.