Mitchell Miglis, MD, on treating post-COVID syndrome patients

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Featured topic and speakers

In today’s COVID-19 Update, a discussion with Mitchell Miglis, MD, assistant professor of neurology at the Stanford Center for Autonomic Disorders at Stanford University, about his experience treating patients with post-COVID syndrome, or “long-haul COVID," and his ongoing research in this emerging area.

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Speaker

- Mitchell Miglis, MD, assistant professor, neurology, Stanford Center for Autonomic Disorders, Stanford University

Transcript

Unger: Hello. This is the American Medical Association's COVID-19 Update. Today, we’re talking with Dr. Mitchell Miglis, assistant professor of neurology at the Stanford Center for Autonomic Disorders at the Stanford University, about his experience treating patients with post-COVID syndrome or long-haul COVID. He’s calling in from Palo Alto, California. I'm Todd Unger, AMA's chief experience officer in Chicago. Dr. Miglis, thanks so much for being here today. Early on in the pandemic, you began treating patients who had certain symptoms long after they recovered from COVID. Can you talk about and describe what you’re seeing?

Dr. Miglis: Sure. We started seeing these patients around March and April of last year, and they were predominantly younger women presenting with the constellation of symptoms that we were used to seeing in autonomic medicine for many years, that of POTS, or postural [orthostatic] tachycardia

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syndrome. While not all had POTS, most of them developed symptoms after fairly mild COVID infection and some of their symptoms emerged several weeks later. And predominantly, they were describing lightheadedness on standing, racing hearts, feeling like they're going to faint, as well as cognitive issues they called brain fog and, of course, fatigue and sometimes GI symptoms.

Unger: It's obviously a lot of unanswered questions. Is there anything or any indications of why this might affect younger female patients?

Dr. Miglis: Well, one theory is that this demographic is predisposed to autoimmune or immune-mediated reactions. We know from prior studies that POTS generally affects women and it does tend to occur after a trigger. And even before COVID, over 50% of our patients would describe viral prodrome before their symptom onset. Autoimmunity is sort of the more common mechanism or more recent mechanism that's been investigated in these patients. There are many other mechanisms, of course, but autoimmunity, as it relates to COVID, is one interesting theory.

Unger: You published a case study about one young woman's struggle with long-haul COVID. Can you tell us a little bit about that case and what do you learn from it?

Dr. Miglis: Yeah. That case was a very kind of classic case of POTS in many ways and some parts of it were atypical. That patient was a nurse, an ER nurse, who had somewhat mild symptoms initially. She never required hospitalization for her COVID infection or SARS-CoV-2 infection. And then, her autonomic symptoms developed after those initial sort of parent infectious COVID symptoms improved. And two to three weeks later was when she started to develop more of the autonomic features. And in her case, I'd say what was a bit atypical was she would have more of these what we call as hyperadrenergic surges, which we do see in some patients with POTS, but I've seen it more in the post-COVID dysautonomia patients. There's increased sympathetic activation. Some of them develop new onset hypertension, or they can develop orthostatic hypertension, so that not only their heart rate goes up, but their blood pressure goes up when they stand. And they just get these spells that can be confused as panic attacks, just sort of fight or flight responses that are probably autonomic in nature.

Unger: You kind of, I guess, described POTS as a systemic condition. Are there any other kind of symptoms you're seeing?

Dr. Miglis: Of course. Obviously, fatigue is very prominent. The cognitive impairment is extremely disabling for most patients but we don't understand why that is. It's probably not just related to blood flow to the brain. It's probably something else systemic, whether that's inflammation or not, we don't know. A lot of patients can develop these GI dysmotility symptoms. They may have constipation or diarrhea. The autonomic nerves innervate the entire gastrointestinal system. And some patients develop new onset pain. They might develop small fiber neuropathy, and that's been reported after other viral infections, so the virus can cause damage to the small nerves in the skin and elsewhere,
and cause various burning-type pains. And then, some patients develop new allergies and are diagnosed with mass cell impairment. And there is a very strong link, I think, between autoimmune conditions, autonomic dysfunction and also allergic function.

**Unger:** It is kind of mysterious, that range of different, I guess, symptoms that are playing out. When you think about or have seen, based on the one year of this under your belt, are you seeing any successful approaches to treating such a wide range of symptoms?

**Dr. Miglis:** We're still in the very early stages of, let alone understanding this, but even thinking about how to treat it. I mean, right now we're approaching this just as we would approach most patients with POTS. Again, not all patients with post-COVID dysautonomia have POTS, but the general paradigm is try to find some medications that control the symptoms and maybe stabilize at least, say, the orthostatic symptoms so they are less lightheaded and they can be more physically active. Treat other components like sleep disorders, migraine, et cetera. And then once that's a little better controlled, then we start thinking about a very gentle physical rehabilitation program.

A caveat there is some patients with this syndrome may have more post-exertional malaise, like a typical chronic fatigue syndrome patient would. And in that case, you don't really want to push the exercise too much because that can cause crashes and backsliding in their therapy. This is why we need the studies and, thankfully, the NIH has allocated funding and, hopefully, that'll be what we're doing in the next year.

**Unger:** I was just reading about another study and one of the physicians quoted in the article talked about how, for patients that start to experience these long COVID symptoms, the first kind of visit to their primary care physician kind of kicks off an odyssey, perhaps, of other visits because maybe these different kind of symptoms are being viewed individually. When you think about what advice you could give to physicians when someone kind of comes in and presents with this, what kind of advice would you give them on the best course of action?

**Dr. Miglis:** Yeah. Very important question. And I know it's something the CDC is working on with a small task force that we're involved in and creating some interim guidance for primary care physicians, because that's going to be the first line of providers treating these patients. And we have to be careful not to fragment the care too much and just refer to a dozen subspecialists for all these various symptoms. I think probably involving various therapists early, whether that's PT, OT, psychotherapists, a lot of patients develop pretty significant anxiety from depression from this. Think about involving those other providers earlier.

And then, if patients do meet criteria for certain other conditions, say maybe POTS. I'd say, from an autonomic perspective, if patients are describing lightheadedness, all doctors should be thinking about just doing a simple orthostatic stand tests in the office, measure blood pressure, heart rate, supine, laying flat. And then, after a few minutes of standing, and seeing if there's clear abnormalities...
there. But we have to be careful not to subdivide and segment their care with subspecialty referral that can really delay the process of them getting seen.

**Unger:** Just let me just ask, who should they be referring folks that kind of indicate those types of symptoms you described after an examination like that?

**Dr. Miglis:** Yeah, I think the first step is really ruling out any organ damage or any kind of more serious sequelae of COVID. We know some patients can develop microemboli. Some patients may have small PEs, cardiomyopathy or myocarditis. There are various blood tests. There's no protocol for this, but we typically check D-dimer to make sure that patients don't have clear cardiac or pulmonary damage from their infection. Might be worth referring some of those patients to cardiologists or pulmonologists. And then, if that's not the case, if they do have these autonomic symptoms, there are not many centers that do treat this.

And then, there is some literature out there for primary doctors that can help with treatment. And we are developing multidisciplinary care center at Stanford at the moment, as other institutions have. And hopefully, with more of these institutions and centers becoming available, there'll be more resources for primary care to refer if the patient is a bit more complicated.

**Unger:** Yeah. I had a guest on from the Atlantic Health System in the East Coast that set up kind of a post-COVID recovery center, so to speak, where that kind of integrated treatment is given. Is that kind of a trend that you see at least kind of developing?

**Dr. Miglis:** Yes. I mean, I think it's a very important trend and I think to carry that forward and to build that, ultimately, we need funding and I think this first step that the NIH has taken with trying to create some patient hubs and patient registries, I think will encourage that. And not only can we care for patients in a multidisciplinary way, but we can collect this data in a harmonized way and try to kind of determine what works and what doesn't for trials and such going forward.

**Unger:** It seems also, too, this is just yet another reason why young people need to get their vaccines, because this is just, obviously, a heavy possible outcome for those that would endure something like this. You're, obviously, a year under your belt now and like so many of the things that we're still learning, in fact, you are now doing your own study. Can you tell us what that research looks like?

**Dr. Miglis:** Sure. We just started with an online global survey about a year ago, partnered with Lauren Stiles at Stony Brook University. And the questions we asked were pretty much all questions related to COVID symptoms, not specifically focusing on dysautonomia, but we also included autonomic survey scores, quality of life scores. And we're just doing a first cut of that data now and, hopefully, we'll be able to publish soon on it. At this point, we have over 4,000 participants for this online component and then filtering that down. We're just including patients that had a confirmed
positive SARS-CoV-2 tests. A lot of these patients early in the pandemic did not have access to testing and that's another gap in the data here. But just including those who had confirmed testing, we came out with about 700 or so patients.

And what we found is the majority, 80%, were not hospitalized. The mean age is around 40 to 50 years of age, 85% are women and their mean autonomic scores are somewhere on level of moderate to severe disability. Something similar to what we would see in a moderately progressive neurodegenerative disorder, some of which require wheelchair assistance. The disability on the autonomic side is fairly prominent and the important point there is it's predominantly women and the initial infection tends to be quite mild, at least from what we've seen.

The next phase, which we're also developing, is to do objective autonomic testing on these patients and do several markers of immune function and blood tests and see if we can somehow detect some signal that would indicate which patients are predisposed to developing this long COVID syndrome.

**Unger:** Do you feel like you have the funding, at least initially, for what needs to happen kind of on an ongoing basis?

**Dr. Miglis:** We don't have the funding to carry this at the moment longitudinally. I mean, we just have funding for cross-sectional study of maybe 20 patients. But hopefully, this next phase of funding that's at least being stimulated by the NIH will give us more opportunities. And looking at various other funding sources, we hope to kind of expand this and, of course, collaborate with other centers that are interested. I'm very interested in anyone that wants to collaborate with us on this.

**Unger:** Well, Dr. Miglis, thank you so much for being here today and for all the work that you and your colleagues are doing. I hope that your research does help shed some light on what is truly a pretty painful aftermath for a lot of folks here. That's it for today's COVID-19 Update. We'll be back soon with another segment. In the meantime, for resources on COVID-19, visit ama-assn.org/COVID-19. Thanks for joining us. Please take care.

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