

Are You Missing COVID?



PODCAST 35

00:12

Dr. Jane Caldwell

Welcome to the *On Medical Grounds* podcast, where you can find an authentic, audible blend of timely scientific and medical knowledge.

Today *On Medical Grounds*, we will be speaking with Dr. Jennifer Frediani. Dr. Frediani is an assistant professor at the Nell Hodgson's Woodruff School of Nursing at Emory University in Atlanta, Georgia. She is the lead author on a recent article published in *Clinical Infectious Diseases* entitled, "The New Normal: Delayed Peak SARS-CoV-2 Viral Loads Relative to Symptom Onset and Implications for COVID-19 Testing Programs."

Hello Dr. Frediani, welcome to *On Medical Grounds*.

Dr. Jennifer Frediani

Hi, thanks for having me.

00:58

Dr. Jane Caldwell

In the abstract of your recent peer-reviewed article, you said the following, "Early in the COVID-19 pandemic, peak viral loads coincided with symptom onset. We hypothesize that in a highly immune population, symptom onset might occur earlier in an infection, coinciding with lower viral loads." Please explain your reasoning for this hypothesis.

Dr. Jennifer Frediani

Sure. Our reasoning was that at this point in the pandemic, most people would have developed antibody based in cellular immune responses, either already from vaccines or previous infections and therefore have a shorter time between the initial infection and symptom onset because there would be a quicker and more effective immune response.

01:48

Dr. Jane Caldwell

How did you test for COVID-19 in this study?

Dr. Jennifer Frediani

We collected nasal swabs, much like you do at home with home tests and the typical collection procedure. We tested the sample using a Cepheid Gene Expert. That was the name, the brand of the PCR test that we used. And we did a test for SARS-CoV-2. It also tests actually for Flu A and Flu B and RSV, so it's a multiplex.

And we used an assay that measures in addition to the PCR nuclear protein antigen concentration, which actually gives us a quantitative measure of that same protein that your home test typically detects.

02:34

Dr. Jane Caldwell

So, you had quantitative as well as qualitative results.

Dr. Jennifer Frediani

We didn't have qualitative results. What this second measure is, is you know, you take a home test at home and it just says positive or negative, you know, either have two lines or one line. What we get is a number to that. We can actually look and see, are you, you know, do you have a higher viral load or a lower viral load? It's kind of the same as the PCR but measuring a different thing. But we still get a number to that, that way we can analyze.

03:08

Dr. Jane Caldwell

Okay, thank you for that clarification. Who did you test in this study?

Dr. Jennifer Frediani

We collected; this is part of a larger effort. We evaluate diagnostic tests. So many of the diagnostic tests that you use at home and some that are point of care that are used in clinics, we've evaluated in our center. And so we used, you know, we recruit from the Atlanta area and it's, you know, pretty much all comers. In this particular study, we used adults that were coming for symptomatic testing. They had some kind of upper respiratory symptoms. And then we took data from just the Omicron variant time point. From April 2022 to April 2023 is where we kind of cut off our data so we had 348 in our final study group. Almost all of them had a history of past vaccination or previous infection or both.

And we also collected data on, you know, at what point were they from their symptom onset? Were they day zero? You know, they came in the same day they started feeling symptoms or, you know, after that. And then we asked for them, you know, the swab for testing.

04:28

Dr. Jane Caldwell

And what were the results?

Dr. Jennifer Frediani

We found that in the symptomatic adults that were tested, that viral loads peaked around day four of symptoms. So that means, you know, day four of symptom onset, that was the highest. This finding has important implications, the use of home antigen tests or home rapid tests. It suggests that some people who actually have COVID may test negative at first if it's earlier on. They may just conclude that it's another cold, you know, it's not COVID. And so our findings kind of give us this idea that maybe they should take a second test. That maybe that first test, especially earlier on, you know, day zero, day one, day two, what happens is the viral loads aren't high enough for that home antigen test to detect COVID. And so we're asking people to take that second test in a couple days.

05:28

Dr. Jane Caldwell

Mm-hmm, okay. If your viral loads are low, are you actually contagious?

Dr. Jennifer Frediani

Yes, you could be. It's always important to follow precautions regardless when you're sick, you know, stay home, mask, wash your hands. It's hard to say because, you know, we don't know when the point of infection will be exactly unless you know you were at a dinner party. But the incubation period has changed through the different variants. So it's hard to answer that question.

06:07

Dr. Jane Caldwell

Okay. Current recommendations say that someone can be contagious for 48 hours before symptoms and then for another 5 to 10 days after symptoms start or a positive test. Do you think your data is reason to re-evaluate the contagion period or do we assume that if someone isn't testing positive, their viral load isn't high enough to transmit? So basically, I'm asking you the same question again.

Dr. Jennifer Frediani

Yes, yeah, the same answer. I don't think we can exactly tell when people with COVID are contagious or not. So, you know, our push, our education here is, you know, go ahead and take that first test when you feel like you need to, but if it's negative, you know, take precautions, mask, wash your hands, you know, stay isolated and take that second test in a few days.

06:52

Dr. Jane Caldwell

So based on this research, what are your recommendations for at-home testing?

Dr. Jennifer Frediani

Currently the FDA recommends that after a first home antigen test or rapid test is negative and symptoms continue, to repeat testing. And our findings are pretty consistent with that. We just put a number on it. We had the data to show viral loads over time because we have such a large data set. And that peak is around day four.

We still recommend kind of the same thing that the FDA is recommending, by pushing people to take that second test because I don't feel many people do. They take that first test and say, okay, it's not COVID, it's just a cold. And they could be wrong.

07:42

Dr. Jane Caldwell

Well, I express to you that this is very timely for me because I've tested positive for COVID for the first time this week, and we bought some tests and they're anywhere from nine to \$12 a piece. There might also be people are trying to limit the number of tests because of expense. Do you think that this is going to impact clinic and hospital testing programs as well?

Dr. Jennifer Frediani

I agree.

In our area where we recruit from, clinics and in hospital ERs, they use rapid tests. They don't generally go straight to a PCR because it takes time, right? So they want to know if the person in their waiting room is positive or not. So what I'm hoping is they get some information about where that person is in their symptom onset and suggest another test later if it is negative that first time. And my hope based on what you just said is that they provide that second test hopefully for these people that may not be able to get access to another test. I don't know if that's being done, but that would be my suggestion.

08:58

Dr. Jane Caldwell

What would be the best way to educate the public about this new delayed viral load?

Dr. Jennifer Frediani

I think the best way to educate is our concise message would be to recognize the importance of serial testing. To make sure that even though that first test may be negative, you wait a few days and take another test. And in between that time, take precautions, stay isolated or at least mask. We should all really have learned from this pandemic that we should stay home when we're sick, even if it's just a cold, nobody wants your cold.

09:36

Dr. Jane Caldwell

So is COVID the new normal for testing and vaccinations?

Dr. Jennifer Frediani

I think so. I think we're now endemic as far as COVID. Our vaccines are becoming seasonal and annual, I would say, just like flu. But it's hard to predict whether we'll see if it's just going to be in the fall, winter season or if we may get those summer colds that we sometimes get. So that's hard to kind of put a number to it but I do think that it's going to kind of fall into a pattern.

10:13

Dr. Jane Caldwell

Now that we've been through a major global pandemic and understand the needs and consequences, are we prepared to handle the next pandemic?

Dr. Jennifer Frediani

I believe we've learned a lot from this experience. I've been kind of intimately involved with the NIH infrastructure and getting these tests out. And we know how to quickly mobilize the development of new tests, new vaccines. We've learned a lot from our mistakes and how long things took. And I think we could get things done even faster next time, you know, because there probably will be a next time, but we know how to pivot. We know how to set up large testing sites. We know how to set up large vaccine distribution sites. You know, everybody, as far as the public, kind of knows the drill. You know, if this were to happen again, those that choose to do so will, you know, stay home, isolate, mask, and take all the universal precautions. So hopefully it'll go a little smoother next time.

11:17

Dr. Jane Caldwell

Your research involves understanding the interaction between lifestyle factors such as diet and exercise with disease. Are there lifestyle factors which prevent the spread of infectious diseases?

Dr. Jennifer Frediani

There aren't any specific lifestyle factors that prevent the spread of infections. There's certainly choosing to mask and staying home when you're sick, but there's certainly ways to keep yourself healthy, to easily fight off infections. So regular exercise has actually been shown in association with COVID to prevent infections or delay or make it a more mild infection. We looked at data with Kaiser Permanente and there's been some other public surveillance data that support that. And we know that those that regularly exercise are less likely to be infected. A healthy diet with lots of fruits and vegetables is always a good idea. I'm a dietitian by training. So eating specific foods won't help but making sure that you have a lot of color on your plate, making sure half your plate is fruits and vegetables. That way you get all of those phytochemicals and antioxidants will help ward off infection, but also chronic disease and pretty much anything else we don't want to get.

12:47

Dr. Jane Caldwell

Can we as individuals reduce the possibility of a new pandemic through lifestyle choices? I'm thinking of some things that happen in Asia and the Far East where people eat raw animals. They eat wild bushmeat, things like that.

Dr. Jennifer Frediani

Yeah, unfortunately, I don't think so. More pandemics are likely to happen. And eating a healthy diet and exercising as an individual is not going to prevent the next pandemic. But you individually will be better equipped to survive it or deal with it, and hopefully get a mild version of whatever comes next.

13:38

Dr. Jane Caldwell

Dr. Frediani, thank you so much for taking time from your busy schedule to speak with us. And thank you for listening to the *On Medical Grounds* podcast. Be sure to click the subscribe button to be alerted when we post new content. If you enjoyed this podcast, please rate and review it and share it with your friends and colleagues.

Dr. Jennifer Frediani

Thank you very much for having me.

Dr. Jane Caldwell

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