

The Suno India Show
Expert on Delta and Delta plus variants of COVID-19

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'In India now public health experts are sounding the alarm about a new variant of the virus that causes COVID-19. More than 50 cases of the so-called Delta Plus variant have been detected in India'

'Bahut badi chunauti hai kyuki kaha ja raha hai ki Delta plus hi vo variant hai jiski wajah se teesri leher ji han corona ki teesri lehar aa sakti hai toh hume aur aapko is variant se kaise bachna hai'

Translation: This is a very big challenge because the Delta plus variant can lead to a third wave of COVID-19.

In June, the Indian government said that an offshoot of the Delta variant has been found in the country. The government named it Delta Plus, which they said is a variant of concern.

This sounded alarming, as the news headlines indicate. The second wave of Covid-19 which started in late March, has been attributed largely to the emergence of the Delta variant of Covid-19. This was particularly seen in Delhi. That's what the Indian SARS-CoV-2 Consortium on Genomics or INSACOG that monitors the mutations in the virus said in a statement on June 18. By June, the delta variant overtook the Alpha variant which was dominant in May. Alpha variant was first found in Britain.

Getting back to delta plus. India has recorded 53 cases of the so-called Delta-plus variant. It is officially AY.1 and AY.2. It has an additional mutation to the Delta variant. In the press release, the government was at pains to explain that the word "plus" was used to mean an additional mutation and that it did not mean that delta plus is more severe or more transmissible. It is not spreading faster than the Delta variant yet.

But the shock of the second wave, which is still ongoing in many parts of the country, has scared many people about delta plus

Hi, I am Menaka Rao, the host of this episode of the Suno India show. To try to understand more about these different variants, I speak with Dr. Shahid Jameel. He is an internationally acclaimed virologist who is also the Director of Trivedi School of Biosciences at Ashoka University, in Sonapat, Haryana

Host: Doctor Shahid Jameel. Thanks a lot for speaking with us. So just to begin with this, you know, I just want to understand how scientists track these different variants of Coronavirus? And why are some Coronavirus variants more of a concern than the others? And are certain kinds of mutations followed more closely by scientists. And why?

Dr. Jameel: So, the way this works is that you carry out the whole genome sequencing of the virus, which comes from people who are infected. And, you know, every virus carries some changes from the original virus. Now, with time, as these changes accumulate, these changes are not always distributed at random.

They come together in lineages or families. So, it is these lineages that are really called variants, isolated changes are called mutations. Whereas when multiple mutations come together in the same virus that becomes a variant lineage. Now, you then find that some of these variant lineages are able to transmit better, can infect better. They're in other words, they're more infectious. There are other variant lineages that carry certain mutations that allow them to bypass pre existing immunity. So they are the ones that break through immunity. Often, both of these properties come together in the same lineage that can only spread faster, is more infectious, and is also able to evade pre existing immunity. And if that is spreading fast in the community, it becomes a variant of concern. Others remain variants of interest. So that's broadly how these are defined. So as you know, at this point, there are four variants of concern. And these have recently been renamed by who has Alpha, Beta, Gamma and Delta. Alpha first was first detected in the UK, beta was first detected in South Africa, gamma was first detected in Brazil, and delta was first detected in India. Beyond that, there are 11 different variants of interest that are being tracked. So you essentially do sequencing and based on the sequencing, you figure out whether it's one variant or the other, and that's how you track it. If a particular variant is spreading more in the population, then you know as a function of time, you will see it increase in the population. So, just to give you an example, if you looked at data of India from March, you will find that there was more alpha variant than the Delta variant. But if you saw data from April, then both were about the same level and by May, Delta had completely overtaken the alpha. So what does it tell you? It tells you that when the two variants are spreading in the same population, and one outcompetes the other, it tells you that there is one which is more infectious, it transmits better and is possibly able to evade all pre existing immunity.

Dr. Jameel explained that the Delta variant is part of the lineage of B.1.617 which was found in the country by late December. This lineage diversified into three sub-lineages. Delta is B.1.617.2. Another sub-lineage called Kappa is not a variant of concern yet.

Host: What are the processes, which sort of require to figure out if this particular variant of interest can actually be a cause of concern?

Dr. Jameel: Well, see mutations happen at random mutations are selected based on you know, certain dynamics in the population. So, what we can do is to limit transmission, the more we reduce transmission by way of vaccination, or by way of masking, we will reduce the frequency of mutations, and if you reduce the frequency of mutations, you will use the frequency of new variants emerging. So that's about all you can do. I mean, the other thing, of course, you can do is if you find, for example, that a new variant is emerging in a localised area, then you can, again, limit transmission by, you know, isolating that area locking down that particular area. So those are things you can do. Now, as far as when a variant of interest becomes a variant of concern, really, that's something that the WHO and CDC take a call on, and it's done internationally. So when a variant of concern is spreading quite efficiently, in multiple parts of the world, then they call it a variant of concern. Otherwise, it remains a variant of interest. To give you an example of this, lately, a lot of concern about a variant called lambda. Now, lambda is a variant of interest, it has not become a variant of concern simply because lambda is restricted to parts of South America. And it has recently just a few sequences have been found in in Europe and in Israel. There are a few cases in the USA as well. So it has not shown the kind of widespread distribution, like the way current variants of concern. So it's a fairly arbitrary definition really. So there is no, I should say, no tipping point that, you know,

beyond this variant of interest becomes available.

Host: No, I was also trying to understand, as you said, epidemiological sort of parameters in terms of how much it spreads and how fast it spreads?

Dr. Jameel: Those will be the parameters. But generally, something's called a variant of concern, if it is spreading in more than one region of you know, it's just like, you know, you call something an epidemic, if it's restricted to some parts of the world, but you call it a pandemic when it becomes global. So that sort of thing here also.

Host: Right, right. Let's get to the Delta variants. What do we know about the Delta variants so far in terms of transmissibility virulence and immune escape? And if we talk about, and what kind of studies I mean, what kind of studies have been done in relation to data variants, and what do we know about it so far?

Dr. Jameel: Yeah, so what we know about the Delta variant is that it spreads faster than the other variants. So, to give you an example, if the transmission rate of the original satisfiers that came out of China, if we give it an arbitrary figure of one, then the alpha variance was 1.5. The Delta variant is 2.5. So essentially, what it means is that it is two and a half times more infectious and more transmissible than the original virus that we encountered in early 2020. Now, there is another term that you may have heard called R naught factors R_0 zero or R naught. So R naught essentially means how many people on average, one infected person can transmit the virus. So the R naught factor for the original virus was somewhere between two and 2.5, which meant that one person could infect about two to three, on average, if you consider that then the Delta variant is capable of infecting about one infected individual and is capable of transmitting to about five others. And that's precisely the reason why the second wave in India, of course, you don't have such high numbers of cases. Remember, the second wave had at peak, it had about four times the cases of the first wave. And that sort of tallies with, you know, it's four to five times more infectious nature of the virus. What you also saw was that there were people who got infected in the first wave, a small number of them also got infected in the second wave when Delta came. So, but most of them did not have severe infection, they had very mild infection or asymptomatic, which means that while the virus has broken through their immunity to infect, the virus has not been able to cause severe disease. And this is pretty much what is seen with vaccinations as well. All vaccines appear to be protecting very well against severe disease and hospitalisation and mortality. But the rate at which they protect from symptomatic disease, somebody getting infected, varies from one vaccine. So even against Delta, all vaccines, and most of the studies have really been done with the two mRNA vaccines and the AstraZeneca vaccine. And it's pretty clear that all of them protect very well. Even a single dose protects very well against severe disease and hospitalisation. So I think a lot of concern because people don't understand. Firstly, the difference between infection and disease. All infections do not necessarily lead to disease. I can get infected by a virus, but if it doesn't cause any disease, you know, I'm not bothered. Right. And that's pretty much the situation now that we're talking about all vaccines protecting against severe disease, it won't put me in, in the hospital, if I take a vaccine. If I don't take the vaccine and if I get infected, there is a good chance that I might get into a hospital. So that's where vaccines are helping. And you know, in support of that if you are paying any attention to what is happening in the UK at this time. UK the number

of daily cases are the same today as they were in their second wave. So the UK is pulling about 30,000 cases a day. But they're still opening up. Why aren't they opening up because now they have data that the rate of hospitalisation has fallen drastically. And the rate of mortality has fallen even more drastically. And why has that happened because at least 60% people in the UK have at least one dose of the vaccine. So that again, tells you how powerful vaccines are in preventing serious disease. So I think we should not worry too much about infection, we should really be worried about serious disease. And it is very clear the vaccines are protecting. So let's not worry about this variant or that variant at this point. All vaccines are protecting against severe disease from all variants. So let's get vaccinated. And let's continue to wear masks, because that is very, very important. Even after your vaccine.

Host: I think it's also the goalposts which shifted. The vaccine manufacturers were talking more about symptomatic disease. And now we are talking much more about severe disease.

Dr. Jameel: Goal posts have shifted, because when clinical trials were done, we did not have these variants.

Host: So, so can you describe the Delta plus variant? And what do we know about it so far? I also wanted to know if you had any comment about the nomenclature because you know, I also feel that because there is a plus that you know, people worry about it more.

Dr. Jameel: Yeah. So Delta plus is really not the nomenclature, which has been officially given. Delta plus is something that people have invented. Its nomenclature is AY.1 or AY.2. There are two viruses, virus lineages like the, you know, when it becomes a variant of interest or a variant of concern, then it is given a Greek name. At this point, it is neither a variant of interest nor a variant of concern. So that is why there's no Greek name to it. No, the Indian government actually called it a variant of concern. And the logic that is used here was that it is one mutation that has occurred in a variant of concern. So since the background itself is a very tough concern, I'll call it a variant of concern. That was the logic. But if you slightly go by what you call a variant of concern, based on its spread in the population and its ability to escape immune responses, then it is not a variant of concern or even a variant of interest in this. But you know, those are artificial nomenclature. Well, so what you know what this Delta plus is that the Delta variant has acquired another mutation in the spike protein. Now, if it was just any other mutation, we wouldn't really care. But this particular mutation was also seen in the Beta variant. And the Beta variant is able to evade pre existing immunity the best of all the meetings. So the concern really, is that do we have a mutation in the Delta background? Remember, delta is more infectious. So do we have a mutation in a more infectious variant that also makes that variant escape immunity much better. So that's a concern. Fortunately, at this time, we don't see much spread of the delta plus in the world. There are about 310 320 sequences known from the world, which is less than 0.5% of sequences of the virus. In India, in the public database, we only have about 18 sequences. But newspaper reports suggest that there are about 50 sequences from India. So 50 sequences out of about 45,000 sequences that have been done is about 0.1%. So it is not really spreading at the rate at which Delta spread. So we keep an eye on it. We sequence more from regions where, you know, this variant was found initially and tracking spread. So the tracking should be done. But at this point, it's not really a matter of concern, either for us or for global.

Host: Our also now there is so much increased reporting on it, in Maharashtra, particularly, you know, some local governments are paying very close attention to it. To the extent that reporters know exactly who is this person infected with various I mean, this particular delta plus variant, you know, stuff like that. So, probably, it's the first time where, you know, we are following the government, small government bodies are following paying attention to a variant? And you know, there is, there is no cause, I mean, you know, there is attention paid to quarantine micro containment. So, what do you think of these measures? Like, is it? Is it something? I mean, it's definitely plus than what they usually do.

Dr. Jameel: No, no, definitely. I mean, those are the ways to contain the spread. But what it not it should not lead to, is targeting people and the stigma that comes with it. That, you know, if you start writing on people's doors, whether they are delta plus, you know, that's not the right thing to do. So we have to be careful about targeting individuals about the stigma that goes with it. Because the moment you start doing that, people will not report cases. And that's, that's worse. If things simmer, you know, under the radar, and we don't know about it. So, yeah.

Host: Do you think that like a flu vaccine, we may need these booster shots that people are talking about now?

Dr. Jameel: Well, at this point, I don't think there is enough data to suggest that we will need this and you know, people are confusing a flu virus with the Coronavirus. They are very different viruses. The rate at which these families of viruses change is very different. You know, the flu virus is also an RNA virus, but it has eight different segments of RNA that make up its genome, whereas the Coronavirus has a single long chain of RNA. Why is that important? It is important because when two flu strains infect the same person, they can exchange RNA segments very easily, which is called the process called reassortment. Reassortment never happens in the Coronavirus because there's only one segment it can't exchange with something. So that's a very fundamental difference between the two viruses and that is one reason why you know these new flu viruses emerge every year. This Coronavirus is there to stay with us for a while. So I really don't think there's enough data at this point to say whether we will need booster shots and if we will need booster shots. Will we need those in six months or one year or two years? We don't really have enough data. So let's keep tracking, let's keep understanding the virus but also keep our systems ready. In case booster shots are required. We should be ready.

Host: Just to understand when you say the RNA is eight strands it means that it can mutate much faster than say even a Coronavirus is what you're trying

Dr. Jameel: Flu virus actually mutates much faster than a Coronavirus and There's a biological reason for it as well. The Coronavirus genome, the genetic material, is one of the largest of any RNA viruses. And because there is enough space on the genome, coronaviruses make a protein that can correct some of the mutations, the errors that are made during its multiplication. So, you know, it's like having a word processor with the correction function and with the non correction function, and if, if you're writing on the former, you will make less error simply because you can go back and correct your errors. And on the other, you know, whatever errors you make will remain there. So that's a very basic difference also

between Coronavirus and then all other RNA viruses. This is a very different RNA virus.

Host: Another thing I wanted to check with you is that does it also mean that we may need to sort of make vaccines with completely new strains or something like that? I mean, you think that is a possibility.

Dr. Jameel: I doubt it very much. Unless a completely new Coronavirus emerges. There's a high there's a much more likelihood of a new Coronavirus emerging a few years down the road. Then this one mutating into something that we won't recognise.

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