

Difäm
German Institute for Medical Mission
Podcast on Corona Virus mutations (Part 2)

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Welcome everyone to this second podcast on corona-virus mutations.

My name is xxxxx, I am a member of the health team of German Institute for medical Mission, in short Difäm. I hope you have listened to our first podcast on mutations in which we explained what mutations are and why they occur.

In this second part on mutations we want to introduce the main variants of concern, which are currently severely disturbing the global response to COVID-19. My colleague xxxx will give us a better insight into the different variants of concern.

At the moment we have a growing number of variants of concern around the globe. There is B.1.1.7, a British variant; there is B.1.351, a South African variant or P 1., a Brazilian variant. In addition, variants from Nigeria and the United States have been registered.

And, recently the Indian variant!

Yes, but we'll come to this one later.

Let us start with the British variant.

Yes, it has a far global reach. It has 17 mutations in the gene for the spike protein. So the virus was found to be much more infective. In Great Britain, there was a severe lockdown when it first emerged. Only the schools stayed open. So within a very short time there were lots and lots of infected children. Therefore, in the beginning it was said: This is a virus that affects children more than adults. However, over time it became apparent, that it just used the children to spread, as they still had contacts while everyone else was in lockdown. It spread fast because with the mutation in the spike protein it is more infectious than the normal virus. At the moment, new studies implicate that the British virus variant B.1.1.7. causes more severe disease and causes more people to die than the original virus.

What about the South African variant of concern?

It was first described on December 18th after a massive increase in transmissions was seen in South Africa. It was at the time, when the school year ends in South Africa. It was the time of graduation parties and students were travelling home all over the country. The virus had good opportunity to spread everywhere in the country and is now the predominant variant in South Africa. In fact, it has almost replaced all other variants that were circulating in South Africa. The B 1.351 variant comes also with mutations in the spike protein; it is spreading more easily and is more infectious than the normal corona virus.

It most likely has emerged because in some areas of South Africa, many people already have had COVID-19. So they carry antibodies. Some of the antibodies normally interact with the spike protein and block it from the receptor. Therefore, the coronavirus cannot enter the cell. One specific mutation called E484K changes the variant so that the human antibodies do not interact as well with the spike protein as in the normal corona virus. So they cannot block the virus from

entering the cells. The mutation allows the virus to escape the immune reaction of the body. It is called an escape-mutation. Therefore, it can even infect even people that already suffered from the normal corona-virus and can spread easily. But apart from that, it does not seem to be more deadly or leading to more severe illness. At the time being, the South African variant is the one rapidly spreading within Africa and causing high case numbers in many African countries.

What do we know so far about the third variant of concern, P1, which originates from Brazil?

It also carries the mutation E484K so it can also escape some antibodies. Therefore, it seems to have caused a reinfection in people who already had COVID-19. It also seems to infect people more easily because it allows the virus to replicate faster in the body; and it also seems to cause severe disease that leads more often to death.

This mutation raises particular concern, because the antibodies that are created by the body after either going through COVID-19 or having been immunized cannot identify the virus as efficiently as before. But these antibodies still help to prevent a COVID-infection from turning into severe disease that requires hospitalization.

And now to the Indian Variant. This is called a double mutant; what does this mean?

The official name is B.1.617. And double mutant is not really correct. It carries 13 mutations. 7 of them are at the spike protein. The name double comes from the fact that two of these mutations have been already found in other variants: One mutation called E484Q, which occurred in the British and the Brazilian variant. And another mutation which was found in the variant from California. With those mutations that we already know the variant is more transmissible and also carries an escape mutation so that antibodies from former COVID disease or vaccination may not work properly. As it is a very recently detected variant, we do not yet know if it leads to more severe cases or even more deaths. More data is still needed to get a better picture of the variant.

There is one thing that all the viruses and mutations have in common: they all react well to the same prevention measures. So washing your hands, keeping a physical distance from each other and wearing masks is still highly effective to slow the spread of all the viruses and mutations.

Be blessed and stay safe!

Sources:

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