EDITORIAL

Recently Discovered Omicron: Fifth Wave of Pandemic in Pakistan. What Strategies Can be adopted to Control its Spread?

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Since November 24, 2021, we are hearing about a new SARS CoV-2 Variant of Concern (VOC) with 50 mutations (30 important) in Spike Proteins. "Omicron" is the name given to it by WHO. Literally little "O" is the 16th letter of Greek and B.1.1.529 is the name of the variant first detected in South Africa, Botswana, in HIV Patients.[1] Although, WHO first reported this variant of SARS- CoV-2 on November 24, 2021, but originally it was reported in a specimen collected from a patient suffering from AIDS on November 9, 2021, in South Africa. There is a lot of concern about more than 50 mutations in the new SARS-COV-2 variant. The world is still waiting if it is more contagious, deadly, and will escape our existing immunity due to previous infection or vaccines.[1-2]

It is believed that this new SARS-CoV-2 variant will spread all over the world very soon. It is likely that the virus may also reach Pakistan in near future. WHO has learnt some lessons from the previous experience of SARS- CoV-2; therefore, they are alert and vigilant to face the consequence of this new variant's spread.

How bad will it behave?

The R0 of this new variant is only 2 as compared to delta variant, which is 5-8. Therefore, its possible spread is not expected to be as rapid as that of previous delta variant. At this stage, due to shortage of real-pathological/clinical data, we are unable to clearly predict the impact of this new variant on the COVID-19 epidemiology.

The world is already panic due to pandemic for the last 2 years and highly concerned about the efficacy of currently available vaccines against "OMICRON", their side effects, and the requirement of booster doses. Moreover, every new mutation in the virus further increases the concerns and worries of people as well as the healthcare providers. With this background the "Omicron's" genetic profile has raised many concerns. It is spreading at a faster rate, but it is not possible to comment on the eventual consequences at this stage. If it is a milder virus, then there be less worries and let the people develop immunity against it. But as a Pathologist, I believe, that it is not expected to cause much health problems by its rapid spread.

Why it has been included as a Variant of Concern (VOC) by WHO?

Why WHO has kept it in the list of VOCS like four previously identified alpha, beta, gamma, and delta variant, which appeared during this pandemic. We need to search the answers to the following questions before making an opinion about its future.

- Is there an increase in transmissibility or detrimental changes in epidemiology?
- Is there increase in its virulence or change in clinical presentation?
- Is there decrease in effectiveness of public health and social measure or available diagnostics, and vaccine effectiveness?

Is there any increase in its transmission?[1-2]

We are looking at a mutation like delta on its spike proteins, which will enhance its efficiency of binding with ACE2 receptor binding sites. One change P681H is at furin cleavage site (delta P681R), where enzymes TMPR SS2 will do its cleavage after attaching its S1 part of SP and will enable rapid fusion of S2 fusion site to ACE2. On behalf of this, the binding affinity may be better and electromagnetic forces may be high. It takes one or more days for transmission and during that your immune system may ramp up. But the reported incubation period is prolonged, about up to 8 days, it means it is not a rapidly killing virus, better affinity does not mean, it is a more lethal virus.

Is it causing detrimental changes in epidemiology?[1-3]

After its evolution from Botswana, SA, the virus is now spreading to other countries of the world, but if we look on the world meter of COVID-19, the

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number of cases is not so much rapidly rising as we have seen with delta virus. The mutations like N679K, N501Y, N679K, D614G, may enhance its ACE2 binding affinity, with more infectivity, viral load and shedding of virus but still the cases are not advancing. We believe it will not cause any detrimental change in epidemiology. The currently available PCRs kits are still working to detect this new VOC. Many laboratories have indicated that for one widely used PCR test, one of the three target genes is not detected. It means there is S gene dropout or S gene target failure. This test can therefore be used as marker for this variant, pending sequencing confirmation.

Using this approach, this VOC has been detected at faster rates than previous surges in infection, suggesting that this variant may have a growth advantage over previous mother virus. What is interesting is that the absolute increase in number is low and yet incubation period is seen as longer, which may perish it in future due to stability issues with large 50 mutations.

Is there increase in its virulence or change in clinical presentation?[1-5]

There is still small data available to comment on this question, but based on current information, it has been observed that there are no increased cases of hospitalization, use of ventilators or admissions in ICUs. The daughter VOC may behave aggressively, or it may be less efficient than the parent virus. On the available data from South Africa, it has been learnt that the symptoms are entirely different from its other relative variants.There is some encouraging news and some mysteries are still associated with "Omicron" symptoms. According to Dr. Angelique Coetzee who is the Chair of the South Africa Medical Board and a practicing GP in Pretoria, the symptoms are extremely mild. Symptoms of this new variant are not clear, however in reported cases they are like previous South African Variant and the Beta Indian Variant. Anosmia is not present, so it means it is not affecting olfactory bulbs. Taste is also present. Neurological symptoms may also be less, and long haul may not be there. There is no or very mild cough and only some mild scratchy throat symptoms, indicating less damage to the epithelium, so the direct spread is less. But as the patient is not aware of the disease, due to fewer symptoms so he may be spreading it silently at home, during meals etc. Therefore, the importance of following the SOPs like social distance, wearing face masks, frequent hand wash must be strictly observed. Tiredness, Muscle pain, Fatigue and Body aches are the more common symptoms. Patients are mostly youngsters and recover at home in short period with less or no demand of oxygen. In older age group data is still not clear.[5]

Is there decrease in effectiveness of public health and social measure or available diagnostics and vaccine effectiveness?

The changes in Receptor Binding Domain which is interacting with ACE2 are interesting and may raise the question about its escape from current available vaccines but still we are not looking such drastic change. All the changes are changing the dynamic of bindings of virus with ACE2 receptors of human; they may make it more efficient? They may make the electromagnetic forces better. They may make them to be bad. They may make the phenotype be better and better fit or may make them? The 30 changes in SP and 20 others, which are making it VOC, can make the virus unstable as WHO is expecting, and these changes may make the virus incompetent.

Vaccination and Omicron

The current vaccine is based on the important structural Spike Protein (SP) of the Coronavirus. The SP is made up of 3831bp (1277 amino acids), while in "Omicron" only 50 amino acids are changed, it means there is only 3.9% change in this new virus. While all other antigenic sites are like previous mother virus, therefore the available vaccines will still work against this strain. The people who have taken one dose must go for the second and those who have taken two doses about six months back, must go for the booster dose.

What strategies can be adopted to stop the major mortalities in our population?

The government of Pakistan should increase the number of lab testing and the campaign of vaccination and booster dose, as it may prove to be a dangerous variant. Hopefully, the vaccination will be effective against it. However, health authorities should be vigilant on the 'world tracing system' of its spread and all airports should be advised to take strict measures to reduce the escape of travelers without testing reports and follow up. It is also

important to ban the travel from the African countries to reduce the spread of virus to our country (e.g., USA, UK, Canada, European union, and Russia have already taken such steps).

Conclusion

There are some encouraging news, that the new variant is infecting the youngsters and symptoms are very mild. The rate of infected people is increasing with this new VOC, but the absolute number of cases are not rising. We must see the clinical outcomes, how rapidly are the patients deteriorating and becoming worse. It is not hugely damaging virus as compared to delta and the large number of mutations will make the virus unstable.

It may not spread to the world like South African's previous Beta and Brazilian's P1 variants as initially feared the world. But we should remain prepared to fight this VOC, more definite information will reach in about 2 weeks.

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