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Letter to the Editor

Can the new SARS-CoV-2 variant of concern, Omicron, evade the immune system?

Sir,

It's been less than a week since scientists in Botswana and South Africa warned the world about a rapidly spreading SARS-CoV-2 variant, known as Omicron now. Researchers and scientists from all over the world are racing to get a clear picture of the threat that the variant poses to the world. However, it may take weeks or even months to completely understand its transmissibility and severity, as well as its ability to evade vaccines and cause reinfections.[1,2]

The rapid rise of Omicron in South Africa is what researchers are most concerned about, as it suggests the variant could cause an unpreceded rise in COVID-19 cases elsewhere. This rapid spread rate suggests and hints that it may be capable of evading the immune system.

Based on increased death rates since the beginning of the pandemic, it is likely that a large proportion of the population was infected with SARS-CoV-2 in earlier waves. In this context, Omicron's spread in southern Africa could be attributed mainly to its ability to infect people who have been infected and recovered earlier from COVID-19 caused by Delta and other variants, as well as those who have been vaccinated.[3]

According to a preprint published on December 2 by researchers at the NICD, as Omicron spreads, reinfections in South Africa have increased. Unfortunately, this is the ideal setting for immune-escape variations to emerge.[4]

The rate at which the variant spreads elsewhere may be affected by factors such as vaccination and previous infection rates. When it spreads in a highly vaccinated population that has given up on other control measures, it may reach its peak.

Previous research on Omicron's spike mutations, specifically in the region that recognizes receptors on human cells, hints that the variant could diminish the potency of neutralizing antibodies and evade the immune system. For example, in a September 2021 Nature paper, a team co-led by Paul Bieniasz who is a virologist at New York City's Rockefeller University engineered a highly mutated version of spike that shares multiple mutations with Omicron, in a virus incapable of causing COVID-19. The 'polymutant spike' was highly resistant to neutralizing antibodies in the majority of the people tested, who had either received two doses of an mRNA vaccine or had recovered from COVID-19. In this context, Omicron is expected to take a massive hit.[5]

If Omicron could shuffle off neutralizing antibodies, this does not rule out the possibility that immune responses triggered by vaccination and prior infection will not protect against the variant. According to immunization studies, modest levels of neutralizing antibodies may protect people from severe forms of COVID-19 but not from getting infected.

Studies will take a while until clear results about this new variant are known. Till then, Control measures should be taken up by all individuals regardless of being fully vaccinated or having recovered from a previous infection. This will contribute to preventing the spike in the number of new cases of the variant.

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