

The Appearance of Novel SARS-CoV-2 Variant (Omicron-B.1.1.529): A Worldwide Health Alert and its Unique Features

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Recently, detection of the Omicron variant (B.1.1.529) of SARS CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2) has added fuel to the seemingly everlasting flame of almost 2 years of COVID-19 (coronavirus 2019) pandemic, a global disease [1]. Firstly, Omicron was recognized in Botswana earlier in November. It was reported to the WHO (World Health Organization) by South Africa on November 24, 2021, which was identified as a VOC (variant of concern) on November 26, 2021 [1]. Omicron have numerous mutations previously reported in other VOCs, including at least 32 mutations in spike protein alone in comparison to 16 mutations in the already highly infectious delta variant, in addition to other proteins including NSP14 and NSP11 that are necessary for viral replication. The variant, Omicron is believed to be at least three folds more infectious than the novel SARS CoV-2 variant and probably more than the delta variant [1].

The coming out of the alpha (α), beta (β) and delta (γ) VoCs from SARS-CoV-2 has been connected with new influence of infections, sometimes worldwide [2]. For example, the augmented transmissibility of γ VoC has been linked with, among other things, a high viral load [3], a long period of infectivity [4] and high rates of reinfection, due to its capability to evade natural immunity [5], which made γ VoC quickly to become the dominant variant globally.

In France, the Omicron variant has already been identified in wastewater treatment plants since mid-November, highlighting the occurrence of the Omicron SARS-CoV-2 variant on French territory whereas only 02 cases have been reported to date (French Public Health data). Slight is recognized about the viral features that could assist its spreading. This variant presents more than thirty mutations leading to amino acid alterations in Spike sequence, fifteen of them positioned in the Receptor-Binding Domain (RBD), which is the key to viral cell interactions through the ACE-2 receptor. Inferences to find out the rate of transmission have been attempted from the spike Omicron gene sequence. These information pointed to a group of mutations at the S1-S2 furin cleavage site, that may augment viral infectivity. Additionally, docking studies have shown that an amalgamation of mutations in RBD would produce a high binding affinity with human ACE-2 of this Omicron variant [6].

Currently, there are too many perplexing factors to compare Omicron infected patients with other variants infected patients, in South Africa. In fact, the mortality and severity of COVID-19 differ greatly depending on the vaccination prevalence, country, the characteristics of the population such as socio-economic level, age, comorbidities, number of simultaneous cases, and medical management guidelines as well leading to health system saturation [7]. At large scale case-control studies, controlled for as many of these factors as likely, are necessary to examine clinical severity, seriously. The medical management of COVID-19 cases is not anticipated to change with this omicron variant. Oxygen remedy combined with corticosteroids will probably remain the main course of treatment. Targeted anti-inflammatory

molecules, like baricitinib (JAK inhibitors) or tocilizumab (IL-6 inhibitors) may be helpful in more severe cases [8]. A striking illustration is the appearance of γ variant which has caused an increase in infections in many places of the world, resulting in millions of casualties [9,10].

Every week, new variants of SARS-CoV-2 have been reported, if not daily. A lesser vaccination rate, a poor public health facilities, the occurrence of large numbers of immunocompromised populations that have weak immune defense and are more prone to infection could be develop into fertile view for the propagation of new variants. Therefore, an intensive global endeavor among academic institutions, health institutions, pharmaceutical industries, biotechnology industries and government agencies is needed to effectively contain this pandemic.

It is no coincidence that Omicron has appeared in a country with low vaccination coverage. Definitely, this new emergence of a variant reinforces the importance of providing access to vaccination globally, since allowing the virus to circulate freely in unvaccinated populations, Firstly, these threaten these non-vaccinated people with severe cases and death of COVID- 19 and, secondly, allow the virus to accumulate mutations rapidly, that can enhance viral infectivity and transmissibility and resulting in new deadly waves around the world as well.

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