

Havoc caused by the SARS-CoV-2 Omicron (B.1.1.529)

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Keywords: Immunisation, Mask, Rapid antigen test, Severe acute respiratory syndrome coronavirus-2

Dear editor,

Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) Omicron variant (B.1.1.529) is the dominant Variant Of Concern (VOC) worldwide [1]. In November 2021, the first genomic surveillance teams in South Africa and Botswana detected a new SARS-CoV-2 variant associated with a rapid resurgence of infections in Gauteng province, South Africa, it was officially recognised as a VOC [1]. There are many mutations in the Omicron that have been previously reported in other VOCs, such as alpha, beta, and delta. There are 32 mutations in the spike protein alone, compared with 16 mutations in the already highly infectious delta variant [2]. Other proteins, such as non structural protein 12 (NSP12), and NSP14, significantly differ among the variant groups for the viral replication process [2]. The SARS-CoV-2 Omicron type was three times more infectious than the SARS-CoV and the delta type [3]. Total 38 countries globally have detected the new Omicron variant, including India, China, Singapore, Saudi Arabia, South Africa, Botswana, Australia, Indonesia, Colombia, Russia, Italy, Israel, Hong Kong, and the United States [4].

At the time of writing this letter to the editor, several developed countries, including India, China, Russia, France, Canada, Indonesia, Iran, Israel, Singapore, Malaysia, Pakistan, Sri Lanka and Hong Kong, have implemented travel restrictions to the following eight Southern African countries of Malawi, Namibia, South Africa, Botswana, Eswatini, Lesotho, Zimbabwe and Mozambique, where the Omicron variant is originated [5-7]. Many countries and states imposed complete or partial lockdowns, assisted with strict quarantines, and instructed free medical treatment for the infected persons [8]. On other aspects, critical medical and scientific challenges associated with the Omicron variant need to be addressed. We also need to know whether Omicron increases disease severity or prolongs infections. The virus's virulence may be lowered by the numerous alterations, although this is highly unlikely. However, it is probable that, once a person has been infected with this variant, there will be a more prominent and quicker spread among cells, tissues, and organs due to its transmission. As a result, more severe tissue damage will occur, and the person will experience more severe pathologies and disease symptoms. This variant may induce an extended illness with no symptoms, making it easier for the virus to transfer from one person to another through nasal droplets.

The infectious potential is high because of the virus's high replication fitness, resulting in a more significant viral load and new variations [9]. As a result, many processes might begin at around the same instant. It has not yet been proved that mutations in the viral NSP14-Exo may enhance the mutation rate in the Omicron variant as a result of differences in the viral NSP12-RNA-dependent RNA polymerase (RdRp), as has been reported in other studies [10]. Because viruses constantly evolve and adapt, newer versions can successfully evade the body's defenses and spread disease. Another source of concern is the use of newly developed vaccines such as Johnson & Johnson's vaccine, Covishield of Oxford- Astra Zeneca's Bharat Biotech's, Covaxin, Novavax, Sinovac, Sinopharm, Pfizer-BioNTech, which are based solely on the original SARS-CoV-2 strain and have

been reported to exhibit lower efficacy against this newer version of Omicron, particularly in the mild and moderate spectrum of the disease [6].

Acquiring such information can be done rapidly by testing antibody response against an Omicron pseudovirus or even an infectious strain that has been confirmed to be contagious. And it should be emphasised that all individuals in their country should be completely vaccinated, wear a mask, avoid crowds, and maintain physical distancing in public [7]. However, unless we need to know whether currently, all available vaccines in the market are against SARS-CoV-2 are effective or not, more clinical evidence is accessible based on the clinical observation Reverse Transcription-Polymerase Chain Reaction (RT-PCR) or Rapid Antigen Test (RAT). Moreover, scientists determined that all the available vaccines are still efficacious and protect against severe disease, hospitalisation, and death, despite the fact that their efficacy has become slightly lesser than previously [6].

Companies like Sinopharm, the Serum Institute of India, and Bharat declared preparations to develop vaccines against the new variant [11]. At all intervals after vaccination and for all combinations of primary courses and booster doses tested, the omicron variant had lower vaccine efficacy than the delta variant; from 20-24 weeks after the second dose, there was essentially no protective effect of immunisation against symptomatic illness caused by the omicron variant among individuals who had received two COVID-19 vaccination doses [12]. However, we will likely not know whether the current vaccines are protective against severe diseases until more clinical data are available. As per the protocol, new variants of SARS-CoV-2 have been reported weekly, if not daily, to World Health Organisation (WHO), till now no severity or mortality rate in Omicron infected patients around the world. Poor public health infrastructure, low vaccination rates, and many immunocompromised populations with weakened immune systems and a higher risk of getting sick could be a breeding ground for new variants. Thus, a concerted global effort among government agencies, Non Governmental Organisations (NGOs), pharmaceutical/biotech industries, and academic and healthcare institutions at the regional level is necessary to increase awareness of this pandemic and prevent it from spreading further.

Acknowledgement

Authors sincerely thank the Aarupadai Veedu Medical College and Hospital, Vinayaka Mission's Research Foundation (Deemed to be a University), Kirumampakkam, Puducherry-607403, India for the support.

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PLAGIARISM CHECKING METHODS: [Jain H et al.]

- Plagiarism X-checker: Mar 28, 2022
- Manual Googling: May 14, 2022
- iThenticate Software: May 17, 2022 (19%)

ETYMOLOGY: Author Origin**AUTHOR DECLARATION:**

- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? NA
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Mar 16, 2022**Date of Peer Review: **May 04, 2022**Date of Acceptance: **May 18, 2022**Date of Publishing: **Jul 01, 2022**