

Opinion

The Omicron Variant -How the Pandemic Threatens Never to End

Abstract

We are faced with the onslaught of yet another version of the virus [Omicron or B.1.1.529 variant] with the looming threat of disruption to healthcare systems and economies. New variants inevitably raise three concerns: transmissibility, virulence, and vaccine effectiveness. The rapid rise in cases among healthcare, hospitality, and transport staff, many of whom have had at least two doses of a vaccine, also appear to prove its increased transmissibility. It is unlikely that further lockdowns are likely to work or be received by the public in the spirit it was done earlier. People have suffered isolation and job losses and further damage to the economy would only serve to accentuate these problems. Universal indoor masking should be encouraged, to allow life to continue with some semblance of normality. The real effect of the Omicron variant remains to be seen. It is very likely to supersede the Delta variant in all countries, including in the USA and in India. To many around the world, not least those in the eye of the storm, the repeat of the desperate scenes of helplessness in Delhi and other North Indian cities during the Delta wave in April and May 2021 is unimaginable. COVID19 has demonstrated how science can transform lives. Civil society, governments, corporates, and citizens should work in unison to ensure an equitably resourced world so that newer variants in the future can be adequately managed.

Keywords

Omicron, SARS-CoV-2, vaccines, pandemic

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Cite as: Chakravorty,S. (2021)
The Omicron variant – How the
pandemic threatens never to
end. The Physician vol 7; Issue
2: 1-3 ePub 25.12.21 DOI
[https://doi.org/10.38192/1.7.2.
4](https://doi.org/10.38192/1.7.2.4)

Article Information

Submitted 23.12.21

Pre-print 25.12.21

ISSN 2732-513X (Print)

ISSN 2732 - 5148 (Online)



scienceOPEN.com
research • publishing network

As we approach the second anniversary of the report of a new ‘pneumonia-like illness’ in people visiting a wet market in China which later turned out to be due to a novel coronavirus [1], many who had begun to expect a gradual transformation of COVID19 into some sort of a benign malaise have had their hopes rudely dashed. We are faced with the onslaught of yet another version of the virus [Omicron or B.1.1.529 variant] with the looming threat of disruption to healthcare systems and economies [2].

RNA viruses continue develop new amino acid substitutions within the human host during replication due to inherent errors in template copying [3]. Some of these substitutions may result in higher ability to infect and propagate within human hosts. During this pandemic we have seen how newer variants of SARS-CoV-2 have emerged despite many preventative measures, such as vaccinations.

New variants inevitably raise three concerns: transmissibility, virulence, and vaccine effectiveness. As it has been less than a month since the WHO has declared the Omicron variant as a ‘variant of concern’ [4], information about this variant’s transmissibility and virulence are scant. However, early studies paint a bleak picture.

Due to the rapid rise in case numbers in Southern Africa, where the Omicron variant was first identified, it is generally believed to be a highly transmissible variant [5]. Modelling studies at Imperial College London based on UK Omicron cases in the three weeks from 23/11/21 predict a high exponential growth rate compared to Delta, resulting in a 2-day doubling time for cases. Population modelling also indicates that unlike Delta, Omicron variant currently appears to be most prevalent among young (18-29), Afro-Caribbean Londoners [6]. Several spike protein amino acid substitutions are predicted to improve binding of the virus to the human ACE-2 receptor, the gateway through which it enters the human cells, thus increasing the transmissibility of the variant [1]. The rapid rise in cases among healthcare, hospitality, and transport staff, many of whom have had at least two doses of a vaccine, also appear to prove its increased transmissibility [7].

Several concerns also arise about vaccine effectiveness. Laboratory tests have demonstrated up to 10-fold reduction in vaccinee sera to neutralise the Omicron variant compared to Delta, though it appears two doses of the Pfizer BioNtech

vaccine, followed by a booster may offer better protection [8]. The UK government has rightly ramped up its booster vaccination drive in the hope that this may help reduce disease severity and need for hospital admission among infected people.

It is currently unclear whether the Omicron variant is more virulent than Delta. A new study in preprint from the Gupta Lab in Cambridge used tissue models of viral infection and showed that the Omicron variant is less able to enter lung tissue in the laboratory compared to the Delta variant [9]. This may offer some to hope that despite being more transmissible, it is possible that this variant may cause less lung damage. Further studies are in progress and clinical data from infected individuals will also add to this knowledge.

We face the Omicron variant at a time when there are close to two dozen vaccines against SARS-CoV-2 in production across the world, and effective oral antiviral drugs are being developed. The UK MHRA was the first to approve molnupiravir, an oral antiviral drug developed by Merck. Another oral antiviral drug, Paxlovid (PF-07321332 150 mg and ritonavir 100 mg) developed by Pfizer has shown 89% reduction in hospitalisation and death in patients taking this treatment within three days of symptoms in an interim report of the EPIC-HR study [10]. Large-scale procurements are being made by the UK government of these oral agents and the monoclonal antibody sotrovimab [11] and huge population-based post marketing studies are currently under way. These agents are believed to be efficient against the Omicron variant. Booster vaccines and oral antivirals may yet stop Omicron from causing deaths and economic hardship seen earlier during the pandemic.

It is unlikely that further lockdowns are likely to work or be received by the public in the spirit it was done earlier. People have suffered isolation and job losses and further damage to the economy would only serve to accentuate these problems. Universal indoor masking should be encouraged, to allow life to continue with some semblance of normality.

That said, drugs and vaccines can only be truly effective if everyone has equal access to these life-saving measures. Nothing is more starkly unequal than the vaccination rates in rich versus poor countries [12]. Despite promises and initial demonstration of vaccine diplomacy, the world’s poorest continue to be deprived of these vital agents, at the likely detriment of everyone around the world [13]. Scientists speculate that newer variants may have developed in

immunocompromised hosts, including those with HIV/AIDS among others [8], in whom viruses have persisted much longer than normal, allowing sufficient time for further deadly viral mutants to develop. Development of generic versions of the oral antivirals [14] and ramping up distribution of vaccines among the world's poorest and most vulnerable is urgently needed.

The real effect of the Omicron variant remains to be seen. It is very likely to supersede the Delta variant in all countries, including in the USA and in India. To many around the world, not least those in the eye of the storm, the repeat of the desperate scenes of helplessness in Delhi and other North Indian cities during the Delta wave in April and May 2021 is unimaginable. The Indian government faces a Herculean task of vaccinating its eligible populace and providing boosters and oral antiviral drugs to the most vulnerable. Urgent development of new generic antivirals, ramping up vaccination production and procurement, including approval of mRNA vaccines and developing a booster programme, encouraging indoor masking, ensuring adequate oxygen supplies and hospital bed capacity is vital.

COVID19 has demonstrated how science can transform lives. Civil society, governments, corporates, and citizens should work in unison to ensure an equitably resourced world so that newer variants in the future can be adequately managed.

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