

Omicron variant as nature's solution to the COVID-19 pandemic

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Abstract

What is Known and Objective: Omicron is a variant of the COVID-19 virus that is causing considerable concern worldwide, with an increasing number of countries re-imposing national lockdowns. Our objective is to comment on its impact and to suggest that, threatening as it is, Omicron may well contribute to a resolution of the current pandemic.

Comment: On 31 December 2019, the World Health Organization (WHO) reported on a cluster of cases of pneumonia in Wuhan, China. Soon after, Chinese investigators who made the discovery identified the causative virus as a new coronavirus, now known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). An effective vaccine was licenced for emergency use within a year of its first sequencing. SARS-CoV-2, in common with many respiratory viruses, mutates rapidly, and the challenge for vaccine developers is to obtain vaccines that are effective against the new variants. The licenced first-generation vaccines were fortunately all highly effective against the variant known as Delta. The variant of greatest current concern is the Omicron variant, a highly infectious agent, which seems to show a significant vaccine escape with existing vaccines. Infection protects against further infection. If Omicron turns out to cause less severe disease, it may well be a contributor to ending the pandemic.

What is New and Conclusion: It is unlikely that the available vaccines will bring rapid control of the current pandemic, given their patchy availability worldwide and the residual pool of unvaccinated people. New vaccines take time to develop and to deploy even in the age of mRNA vaccines. If Omicron turns out to be relatively mild, it may well be that when we look back at the history of the current pandemic, the variant would be seen as a contributor to its solution. The hand of nature may well show more largesse than the developed nations in immunizing the world.

KEYWORDS

Clinical Pharmacy history, Collaborative healthcare, Pharmacy Education

1 | WHAT IS KNOWN AND OBJECTIVE

The first report by the World Health Organization (WHO) on the coronavirus, the cause of the infection now known as COVID-19,

signalled the beginning of one of the most momentous epidemics in the history of mankind. The Coronavirus Study Group (CSG) of the International Committee on Taxonomy of Viruses classified and named the virus as severe acute respiratory syndrome coronavirus

2 (SARS-CoV-2).¹ Our objective is to comment on its highly infective Omicron variant and to suggest that while it may go on to overwhelm some health services and kill many, it may well contribute to a resolution of the current pandemic.

2 | COMMENT

On 31 December 2019, the World Health Organization (WHO) reported on a cluster of cases of pneumonia in Wuhan, China. Soon after, Chinese investigators who made the discovery identified the causative virus as a new coronavirus.^{2,3}

The Omicron variant of the virus (or more simply and less alarmingly, variant O; the 15th letter of the alphabet, both Greek and English) is regarded as a serious threat because of its extreme contagiousness. Only a small proportion of infected patients needs to be hospitalized for most national health services to be overwhelmed, the dreaded outcome for all governments. To avoid this, many health authorities, including the UK National Health Service, have embarked on a campaign to boost vaccinate the whole of its eligible population. As some early evidence suggests that the vaccine is less effective against variant O,⁴ concern is spreading to a level that creates fear bordering on panic.⁴

I have worked on vaccines on and off for many years^{5,6} and have previously served on the British Committee on Safety of Medicines. So, friends and relatives often ask me about drugs and health matters.

"I hear that the J and J vaccine which I have had as a booster is less effective," one of my friends asked. I sensed his implicit worry that he might be at risk of catching the infection and dying as some of his acquaintances had during the first wave of the pandemic. "Is it true that those fully vaccinated are more likely to get infected with Omicron than those not vaccinated? How is this possible?" asked another.

That variant O is causing considerable concern is obvious, a concern that feeds on fake news and headlines of proper research, truncated more to grab attention than to convey nuances and uncertainties of the work reported. In the fast-changing world of COVID-19, discriminating between fake news and fact, and fact within headlined quality research, is increasingly difficult even for those actively involved in its research. A Medline search of the word "COVID" in the title brought up over 140,000 records by the middle of December 2021.

The history of vaccination goes back many centuries before the late eighteenth century when Benjamin Jesty and Edward Jenner noticed that milkmaids infected with cowpox, a mild disease, developed protection against smallpox, a disease that killed one in three of those affected.⁷ The Chinese had eight centuries earlier been practising variolation, a technique that involved taking small samples of pus from smallpox pustules, drying them and inoculating those not yet infected, intranasally.⁷ Later variolation would be more widely given intradermally. The technique of attenuating dangerous viruses for use as vaccines by desiccation was subsequently extended with

chemical inactivation and repeated passages through animals or cell cultures. Treatment to kill (inactivate) the viruses while maintaining their ability to elicit protective immune responses became another approach to safer vaccines. One of the most successful is the Salk vaccine that used formaldehyde to inactivate the potentially deadly polio virus. Pasteur was of course one of the giants in the development of safe vaccines, some of which we still use today.⁸

The first insight into vaccine development arose from the observation that those infected were usually resistant to further infection. That must have been the rationale behind the work of the early Chinese inoculators, as well as Pasteur and Jenner. The challenge was to induce a protective immune response without the disabling effects of the diseases they were trying to guard against. Several of the COVID-19 vaccines developed so far, including the Pfizer-BioNTech and the Moderna vaccines, are highly effective against the original virus and the Delta variant that have caused over 5 million deaths so far, but early epidemiological data and molecular modelling suggest that Omicron may be more likely to show vaccine escape. How much of a threat this represents in terms of serious disease is still uncertain but as the numbers of those infected with Omicron increases, there is tentative evidence that the variant is less severe⁹ and that some of the existing vaccines remain effective, albeit at a lower level.¹⁰ Severity is defined at the population level, that is as the proportion of those infected ending up in hospital or dead, rather than as the distress caused at the individual infected person level. Even in southern Africa, where Omicron was first identified, only preliminary evidence is available.¹¹ Definite answers to the questions that I was asked cannot be answered with certainty. However, complacency is to be avoided as the sparse data that is available does not allow us to infer with sufficient confidence that the Omicron variant is indeed any less likely to lead to hospitalizations than the Delta variant, particularly in the unvaccinated.⁴ Mathematical modelling and prediction models paint pictures that are only as good as the input data. In the COVID-19 world, the data are a rapidly moving target. Populations vary in age structure, vaccine coverage, particular vaccines used and extent of vaccine escape for each. What we see in South Africa is not necessarily predictive for the dynamics of the infection in other countries. Only a small increase in hospitalization is required to overwhelm healthcare systems already sitting on the razor blade of fatigue and winter woes. For this reason, governments worldwide are scrambling, if not for worst scenarios, at least for bad case scenarios.

It is unlikely that vaccine equity and universal vaccination will be achievable in the near term and much of the world will remain unvaccinated for at least another year. Moreover, there is a large residual pool of unvaccinated people and a time lag imposed by new vaccine development. There will therefore be many more infections, each with an opportunity to generate a new variant of concern through random mutations. If further data show that Omicron produces predominantly mild disease, then this is extremely good news. It would mean that the highly contagious variant would act as a natural vaccine, one that the ancient sages saw when they first came with the idea that deliberate infection with a milder form of contagion might prevent more severe disease. Before the age of modern vaccines,

herd immunity against infectious diseases was achieved by this Darwinian evolution and natural infections.

3 | WHAT IS NEW AND CONCLUSION

If Omicron turns out to be relatively mild in the previously vaccinated, and particularly in the unvaccinated, it may well be that when we look back at the history of the current pandemic, for all pandemics end, the variant would be seen as a contributor to its solution. Failing this, the outlook is bleak. In a continuing world of haves and have-nots, we hope that Omicron may once again be the instrument of the invisible hand of nature to mitigate the devastation of a dreaded infection; a hand that is more generous than the developed world in sharing its immunizations.

CONFLICT OF INTEREST

The author declare that there is no conflict of interest.

DATA AVAILABILITY STATEMENT

None.

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