IPCRG practice driven answers on COVID-19 and respiratory questions

How effective are the current SARS-CoV-2 vaccines against the Omicron variant?

What the research says

The Omicron variant (B.1.1.529) was classified as a variant of concern by WHO on 26 November 2021 (WHO 2021). The variant first emerged in South Africa where the current vaccination rate among adults is approximately 24% and was associated with a rapid increase in infection rates. The variant is now present in more than 60 countries around the world. How quickly this variant will become dominant and the rate of community spread in populations with higher vaccination rates remains unclear. The situation is changing rapidly and it is anticipated that the Omicron variant will become the dominant variant globally within weeks.

The significance of the mutations in the Omicron variant remains under investigation. Mutations in the SARS-CoV-2 viral genome, especially those regions encoding the surface spike protein and the receptor binding domain, have been associated with increased transmissibility and higher rates of symptomatic COVID-19 illness (Davis et al 2021; Mlcochova et al 2021; Nasreen et al 2021). Such mutations also have the potential to reduce the effectiveness of vaccines against SARS-CoV-2 if they alter critical binding sites on the viral surface.

Current vaccines are expected to provide protection against severe illness, hospitalizations and death due to the Omicron variant. Protection against infection is anticipated to be less robust (CDC 2021). Preliminary data suggest that the variant may be several times more transmissible than the Delta variant, even among individuals who have received a full vaccine dose, although a booster (third) dose of an mRNA vaccine appears to be associated with an increased level of protection from infection (Cele et al 2021; Pfizer Press Release December 8, 2021). For this reason, many countries are now increasing the rate and shortening the interval for booster vaccination.

What this means for your clinical practice

- The definitive answer to this question remains unclear at this time
- Vaccination against SARS-CoV-2 should be completed if not already done using locally available vaccines according to National guidelines and booster vaccination with mRNA-based vaccines encouraged where available
- Maintain social distancing and infection control measures including the use of PPE according to National guidelines

Useful links and supporting references

CDC. Omicron variant: What you need to know. Available at: https://www.cdc.gov/coronavirus/2019-ncov/variants/omicron-variant.html. Accessed December 2021.

Cele S, et al. SARS-CoV-2 Omicron has extensive but incomplete escape of Pfizer BNT162b2 elicited neutralization and requires ACE2 for infection. Available at: https://www.ahri.org/wp-content/uploads/2021/12/MEDRXIV-2021-267417v1-Sigal.pdf. Accessed December 2021.

Davis C, et al. Reduced neutralisation of the Delta (B.1.617.2) SARS-CoV-2 variant of concern following vaccination. Pre-print, available at: https://doi.org/10.1101/2021.06.23.21259327. Accessed December 2021.

Mlcochova P, et al. SARS-CoV-2 B.1.617.2 Delta variant emergence and vaccine breakthrough. Pre-print, available at: https://doi.org/10.21203/rs.3.rs-637724/v1. Accessed December 2021.

Nasreen S, et al. Effectiveness of COVID-19 vaccines against variants of concern, Canada. Pre-print, available at: https://doi.org/10.1101/2021.06.28.21259420. Accessed December 2021.

Pfizer Press Release. Pfizer and BioNTech provide update on Omicron variant. Available at: https://www.pfizer.com/news/press-release/press-release-detail/pfizer-and-biontech-provide-update-omicron-variant. Accessed December 2021.

WHO. Update on Omicron, 28 November 2021. Available at: https://www.who.int/news/item/28-11-2021-update-on-omicron. Accessed December 2021.

Authors

Prof. Dr. Ee Ming Khoo (Department of Primary Care Medicine, Faculty of Medicine, University of Malaya, Malaysia) for and on behalf of the IPCRG practice driven answers review group.

Last reviewed: 14 December 2021