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LETTER TO THE EDITOR

An insight in Omicron variant and the effectiveness of available vaccines for COVID-19

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ABSTRACT

The Omicron variant (B.1.1.529) recently emerged from South Africa is declared as Variant of Concern (VOCs). More than 30 mutations in the spike proteins were detected, which weaponized the variant with higher transmission rates, a greater affinity for viral binding, and significant antibody escape. COVID-19 vaccines may provide an increase in protection against Omicron by producing more significant levels of neutralising antibodies, still comprehensive clinical data is required.
MeSH words: COVID-19, Omicron, vaccine

Dear Sir,

Since the onset of the COVID-19 pandemic, the virus is still mutating and producing Variant of Concern (VOCs). On November 26th, WHO's Technical Advisory Group on Virus Evolution (TAG-VE) classified the variant as a new VOC[1]. Omicron variant has been spreaded across the globe posing a significant global risk. Omicron has many deletions and mutations. Some of them (e.g., 69–70del, T95I, G142D/143–145del, K417N, T478K, N501Y, N655Y, N679K, and P681H) have similarities with previous VOCs. Significant mutations in the Spike protein of omicron, namely NSP3, NSP4, NSP5, NSP6, NSP12, NSP14, S protein, envelope protein, membrane protein, and nucleocapsid protein suggests alterations in its responsiveness to immunological protection generated by the current COVID-19 infection and vaccinations[2].

Omicron does not significantly raise the risk of severe disease or death in vaccinated people. Vaccine efficacy against symptomatic infection induced by the Omicron variant is projected to be much lower than against earlier versions. The effectiveness of two doses of Pfizer's vaccine in preventing illness plummeted from 80% pre-omicron to 33% during the omicron wave. However, the shot's effectiveness in preventing hospitalisation decreased less dramatically. The vaccine was 93% effective before omicron, but it is now just 70% effective in the Omicron outbreak[3]. When comparing mRNA booster dosages to two vaccination doses or the levels of neutralising antibodies elicited by SARS-CoV-2 infection from different variations, COVID-19 vaccines may provide an increase in protection against Omicron by producing more significant levels of neutralising antibodies. Oxford (AZD1222), Pfizer (BNT162b2), Moderna (mRNA-1273), and Novavax (NVX-CoV2373) vaccines for COVID are being tested in the 'Com-Cov2 trial' in the UK, and Oxford and Pfizer vaccines in the 'Combivac S trial' in Spain, using heterologous prime-boost doses of COVID-19 vaccines (mix-and-match approach). Later, additional heterologous CoronaVac (DB15806), Janssen (JNJ-78436735), CanSino (AD5-nCOV), and other combinations were tested to see how efficient they were[4]. When compared to placebo, Pfizer's oral antiviral medication paxlovid dramatically reduces hospital admissions and mortality among persons with covid-19 who are at high risk of severe illness[5]. The fact that antibody levels may rise in the general population should not be taken as proof of long-term success, and comprehensive clinical data is required to evaluate whether booster doses are required.

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