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## LETTER TO THE EDITOR

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## ABOUT COVER

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LETTER TO THE EDITOR

# Omicron targets upper airways in pediatrics, elderly and unvaccinated population

Wassan Nori, Muna Abdul Ghani Zghair

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## Abstract

Omicron, a severe acute respiratory syndrome coronavirus-2 variant, has spread around the globe, causing dramatic increases in infection rates. Viral mutant antigens were responsible for the strong infectivity, fast replication, and high reinfection rates reported from all ages. Omicron causes clinical symptoms mostly related to the upper respiratory tract with minimal symptoms from the lower respiratory tract besides an urgent presentation of cases that resembled a fatal illness, epiglottitis. Not to mention the long coronavirus disease 2019, which rises exponentially in the Omicrons era. Apparently, the disease has a less aggressive course than earlier variants with lower death rates; however, the infection is not trivial. Severe infection was raised among pediatrics, unvaccinated, and the elderly. Complete vaccine protection is urgently needed to protect the most vulnerable community members. Additionally, self-protective strategies such as wearing a mask and safe social distancing cannot be omitted.

**Key Words:** Omicron; SARS-CoV-2; Upper respiratory tract; Epiglottitis; Pediatrics; Unvaccinated

**Core Tip:** Omicron, a severe acute respiratory syndrome coronavirus-2 variant, showed a special predilection for the upper airways. It caused a clinically different scenario, affecting pediatrics as a croup-like syndrome and urgent presentation in adults by causing alarming symptoms that resemble epiglottitis. Exponential Omicron infectivity and spread are higher than an earlier variant, yet it has lower death rates. High-risk groups for having severe forms of infection were the elderly and the unvaccinated population, which reinforces the importance of the vaccine in breaking the disease chain together with self-protective techniques such as masking and safe social separation that cannot be overlooked.

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## TO THE EDITOR

With interest, we read Al-Ani *et al*'s study published in *World J Clin Cases* 2022, which discussed ear, nose, and throat manifestations of coronavirus disease 2019 (COVID-19)[1]. Al-Ani *et al*[1] addressed the emerging virus's point of strength; its ability to mutate to form a new variant. In November 2021, South Africa was the first to identify a new severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) variant (Omicron-B.1.1.529) late in November 2021[2]. New viral variants had different transmission, infectivity, clinical presentation, diagnostic tests, and, last but not least, different resistance to vaccines [1,2].

Omicron variants have multiple mutations, enabling them to spread faster and infect people with naturally gained or vaccine-induced immunity. Fortunately, it causes a less severe mortality rate than earlier variants[3]. Omicron is not a trivial infection; cases that are elderly, immunocompromised, or unvaccinated continue to suffer from a more severe form of the disease[4,5,6]. Furthermore, the potential immunological role of gender and sex hormones has not been entirely ruled out[6,7].

What is unique about Omicron is that it has a particular predilection for the upper respiratory tract, presenting mainly with nasal discharge, sore throat, acute laryngitis, and less olfactory or taste disturbances. Some patients suffered from acute odynophagia, severe sore throat, and fever, a tried that became a typical presentation of the Omicron variant. A rapid examination with laryngoscopy is highly indicated to exclude epiglottitis. The latter is a life-threatening differential diagnosis where inflammatory edema occurs in the upper airways[8].

Omicron in pediatric patients showed a higher incidence of croup syndrome, a serious obstruction of the upper airways at ages less than four years. This implies that the Omicron targets the larynx. Thus, in the Omicron era, upper airway obstruction should be considered among pediatric patients[9].

Brogna *et al*[3] reported a seventy-year-old woman who suffered from a severe chest infection with an Omicron variant owing to pneumonia. The authors discussed how this variant causes concerns in geriatrics.

Chang *et al*[10] assessed the hematological and inflammatory biomarkers that define the severity of COVID-19 in the Omicron infected group *vs* the non-infected.

Omicron cases suffer from lower white blood cells, neutrophils, lymphocytes, eosinophilia, and platelets. Besides a lower lymphocyte multiplied by neutrophil counts (LYM * NEU) compared to the non-infected group, this reduction was attributed to a depressed immune system by the invading virus. They recommended using the LYM * NEU count as a reliable early and rapid diagnostic biomarker for Omicron.

Interestingly, C-reactive protein and serum amyloid failed to distinguish confirmed patients showing a non-significant reduction. Likewise, assessing the disease severity by blood oxygen saturation has not been useful in Omicron cases[10].

Regarding the Computed tomography (CT) scan, the Omicron variant showed fewer and less severe changes. Patients had more thickening of the bronchial walls, but the disease was less severe, and they had better hospital outcomes (including admission to critical care or death within 30 d of CT pulmonary angiography) than earlier versions[11].

What makes Omicron more likely to escape vaccine-induced immune protection is that the variant mutations add to the decline in the protection provided by the vaccine. Taken together, the complete vaccine bootstring cannot be overestimated. Patients who were already vaccinated with a booster dose had fewer odds of severe disease, less transmission risk to others, and lower CT changes than unvaccinated patients[5,12].

Lee *et al*[13] discussed that only vaccine schedules with at least one mRNA vaccine and a booster dose would trigger a sufficient neutralization response against Omicron.

Birol *et al*[14] study declared a lower severity of COVID-19 and less likely to need oxygen supplementation among fully vaccinated *vs* unvaccinated pregnant women with Omicron variants.

It is worth mentioning that the vaccine was not licensed for children under four years, which might explain the higher incidence of Omicron among pediatrics and the urgent need for vaccine approval.

In June, 2022. America's Center for Disease Control and Prevention and Canada's National Advisory Committee on Immunization recommended that:

Children aged (6 mo - 4 years) should have two doses of the Pfizer vaccine at 3-8 wk intervals, and children aged (6 mo – 5 years) should take 2 doses of Moderna shots at six weeks intervals[15].

In conclusion, protective vaccine schedules alongside protective measures have changed the face of COVID-19 pandemic[16]. The previous vulnerable group, as pregnant, showed less severe infection post-vaccination. In contrast, pediatrics suffered a higher infection rate with Omicron before licensing vaccines for them. However, Omicron in vaccinated elderly and unvaccinated individuals carries significant morbidity.

Increasing awareness about the importance of vaccinating household members to protect vulnerable groups and self-protective strategies such as wearing masks and safe social distancing cannot be overestimated.

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## FOOTNOTES

**Author contributions:** Nori W designed the research, Ghani Zghair MA reviewed data; Nori W wrote and revised the letter; the authors read and agreed on the final version of the manuscript.

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