

COVID-19 Vaccination and the Fourth Wave of Pandemic Spread

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Abstract

During the first three waves of COVID-19, the focus was on herd immunity through providing vaccinations and applying quarantines. Though, we were unable to prevent the fourth wave of the disease and new variants of the virus were identified. It is believed that quite some people question the safety and quality of existing vaccines and untrust their effectiveness from aside, and violate the quarantine guidelines, such as social distancing, wearing a mask, and other suggested safety procedures from another side. Today, based on scientific research and healthcare scientists' recommendations, it can be concluded that the most effective measures to prevent COVID-19 are vaccination and self-quarantine.

Keywords: COVID-19; vaccines; omicron; SARS-CoV-2; pandemic.

1. Introduction

On December 7th, 2021, a remarkable increase in the number of Omicron cases has been reported globally in 57 countries. As we experienced many variants of SARS-CoV-2, Omicron is a new one with a very high infection rate. The world's first confirmed case of Omicron was detected on November 8th, 2021, in South Africa, although the exact timing and location of Omicron's emergence is not yet known [1,2]. However, reports from South Africa regarding the COVID-19 situation showed that the fourth wave peak of the Omicron variant has passed without recognizing an increase in the number of deaths. Furthermore, the current situation of infection rates pops up a noticeable decrease in the number of registered cases [3]. Accordingly, restrictions were eased in South Africa, where the imposed curfew was lifted, but large gatherings were restricted and wearing masks in public places is still an obligation. From data, it is notable that the recovery rate from this wave is shorter than the previous waves; the diagnostics conveyed that the Omicron has a higher transmission but less severe symptoms than the previous variants, such as beta and delta [4]. The preliminary epidemiological data from South Africa, Hong Kong, and the United Kingdom, as well as the modeling data, confirmed that the transmissibility of Omicron is greater than that of the delta variant [5-12]. Most of the observed cases were either asymptomatic or showed mild symptoms when the testing was carried on. Therefore, a longer follow-up period is required for a more accurate assessment of

the severity of omicron infection [13-20].

This review study sought to present nurse practice guidelines for COVID-19 prevention and management, immunization, and guidance for persons who have been fully vaccinated.

Vaccine efficacy and epidemiological evidence

Although Omicron's infection cases were reported from many countries, current data are considered insufficient to comprehend whether Omicron variant can evade the gained protection from vaccinations, or it can be influenced [21-25].

Re-infection Status

In a modeling study, it was found that more than 35,000 individuals were re-infected and 332 people were infected twice. Epidemiological data showed that an individual's risk of re-infection was proportional to the infection rate, and there was no evidence of population-wide immune escape during waves of COVID-19 driven by Beta and Delta variants [26].

Changes in Vaccination Programming

When the Omicron's wave appeared, some in charge authorities updated their COVID-19 vaccination programs. These updates included encouraging people in some countries, such as Denmark, England, Finland, France, Germany, and Ireland, to take booster shots, and/or shortening the minimum period between completion of the vaccination series and the booster dose (e.g., three months in England, five to six months in Finland, and five months in

France). Israel has begun discussing the fourth dose of the vaccine for some residents [27-30].

Vaccination against COVID-19

Vaccines are highly effective ways to control, hinder, and eliminate vaccine-preventable diseases. Great efforts were proposed to develop vaccines using various approaches, which include conventional live attenuated and inactivated vaccines, and modern solutions using viral vectors, mRNA, DNA, mono proteins, and virus-like particles as vectors. In addition, new vaccines, such as mRNA and viral vector-based nucleic acid vaccines, were given in emergencies [31, 32].

Important principles and administrative controls

In order to limit or reduce the transmission and spread of any disease (particularly COVID-19 in this study) among patients, special protocols must be prepared in advance, specifying the broad lines to be followed. For instance, the distance between one person and another should not be less than 6 feet; thereby, the seating places (chairs) have to be arranged in this context [33]. It is also important to restrict access and visit to patients to avoid direct contact. These important guidelines are recommended by most national directive policies since the first wave of COVID-19 [34].

COVID-19 guidelines for full vaccination

In order to successfully control or eliminate COVID-19, a person must be fully vaccinated. The “fully vaccinated” term is called for a person who received a dose within the last 14 days, whether this is the first or second dose. People are being vaccinated despite the side effects of doing so until full recovery will be achieved. This can be difficult without masks even if herd immunity is achieved due to the fast change in the virus forms and its new variants. Moreover, not all vaccinated people acquire a level of immunity that can prevent the infection. Even after vaccination, people must adhere to the certain lifestyles of hygiene, washing hands, and wearing masks for a long time [35-38].

Omicron Symptoms

The most common signs of COVID-19 remained the same, such as a runny nose, headache, fatigue, sneezing, and sore throat. As there is no clear difference in the profile of delta and omicron symptoms, only 50% of recently infected people show the “classic” signs of the disease, which are fever, cough, and loss the sense of smell or taste. Interestingly, the loss of smell and taste became less common and ranked the 17th among the symptoms of COVID-19 as it was among the top 10 symptoms earlier in 2021. Now, only one out of five people is experiencing it.

While many individuals may experience Omicron as a common cold, the illness can lead to death, and people can also experience the long-term signs that disrupt their daily lives, referred to as protracted

COVID-19. The prolonged COVID-19 was identified with some signs even weeks or months after the infection clears. Common symptoms of prolonged COVID-19 may include extreme tiredness (fatigue), shortness of breath, soreness or tightness in the chest, problems with memory and concentration (brain fog), difficulty sleeping (insomnia), heart palpitations, dizziness, depression and nervousness, ringing in the ears, feeling sick, diarrhea, abdominal pain, loss of desire to eat, high temperature, cough, complications, sore throat, changes in the sense of smell or style, and rash [39].

Strengthening The Immune System Against COVID-19

Whether it is the emerging coronavirus "SARS-CoV-2" or any other diseases, immunity plays a key role in protecting the body by providing the needed protection to resist diseases and epidemics. Following a healthy diet that contains vitamin C, which is found in citrus fruits, berries, kiwi, broccoli, and spinach, is a priority. Similarly, vitamin E, which exists in seeds, almonds, and walnuts, is urgent to provide the body with antioxidants that fight the damage caused by free radicals in cells. The diet should also be based on fresh foods, where fast and fatty foods should be avoided. Moreover, it is recommended to skip cooking methods that lead to nutrient degradation. Fruits and vegetables should make up 50% of our diet because they contain most of the nutrients that cells' immunity need. The plants could provide fibers, antioxidants, and vitamins A and C. Legumes, known to be rich with minerals such as zinc, folic acid, copper, and selenium, are also advised for immune system improvement [40-42]. Based on a survey in our group that tracked the severity of conditions and the food habits for many patients, we found a magical effect of garlic in enhancing the immunity system. Most people who ate fresh garlic frequently showed very light symptoms. Onion and egg are coming in the second place after garlic.

In addition to a food diet, meditation exercises have proven effective in combating infections in general. Laughter, which is a natural antidote to anxiety and stress, is a simple form of therapy because the body secretes the hormone dopamine, which enhances the feeling of happiness. Other simple attitudes are represented by maintaining a healthy biological clock for sleeping, staying away from using electronic devices at night, and avoiding late heavy meals. It is also important to get enough sleep, as many scientific studies have shown that the hormones secreted by the brain during sleep support the immune system. Vitamin D can be obtained by exposure to the sun for 15 minutes a day, drinking water, exercising, and fasting. Fasting from food for a period ranging between 14 to 16 hours and only drinking fluids could eliminate the dead cells [43].

Toxins That Attack the Immune System

Added sugar is the biggest enemy of the immune

system. The difference between added and natural sugar in fruits lies in the fact that fruits are rich in fiber, which facilitates the body's absorption of sugars. There is no doubt that our brains need sugars to perform their functions, but this does not mean refined sugar. Instead, natural sugars found in fruits, legumes, and grains are the recommended ones for the body. Also, eating fried food permanently increases the risk of cardiovascular diseases [44].

2. Conclusion

After the three waves of COVID-19, the fourth wave has started in many countries and reached its maximum in some of them. Despite the focus on vaccination and quarantine in order to achieve herd immunity, these trials did not prevent and protect us from the fourth wave. However, reports from the World Health Organization emphasized the need for vaccination and quarantine to overcome this epidemic. From our side, we encourage people to fulfill the required actions to prevent the spread of the disease. Also, piking fresh and healthy food is very recommended to enhance the immunity system.

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Conflict of interest

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