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Omicron Variant and Infection Control in Pediatric Surgery Department

Pakize Aygün[1], Nevin Kanan[2]

[1]İstanbul University-Cerrahpaşa, Cerrahpaşa School of Medicine, Hospital Infection Control Committee, İstanbul, Turkey
[2]Health Sciences Institute, Surgical Nursing, Haliç University, İstanbul, Turkey

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Abstract

Since the beginning of the COVID-19 pandemic, approaches in terms of the course of the disease in children and recommendations for approach in pediatric surgery are generally presented with limited data. Recently, the new wave in the pandemic caused by the Omicron variant raises new questions due to the transmission kinetics and the different clinical features. The World Health Organization and the United States Centers for Disease Control and Prevention have new recommendations on the prevention of the spread of COVID-19 in health institutions. Apart from the continuation of the World Health Organization's routine recommendations, the use of respirators (N-95/FFP-2) is recommended in the emergency room, intensive care units, and units caring for COVID-19 patients, even when aerosol-generating procedures are not performed. United States Centers for Disease Control and Prevention, on the other hand, recommends reducing the isolation period to 7 days or even 5 days with a negative polymerase chain reaction test in vaccinated, asymptomatic health-care workers and cancelling post-contact quarantine practice. The Ministry of Health has also made arrangements in accordance with these recommendations. Current publications on infection control methods recommended in the field of pediatric surgery were reviewed in this study. Omicron spread can be prevented when the recommendations that can be applied in pediatric surgery clinics are taken into account. It is recommended to contact the Hospital Infection Control Committee regarding the implementation of COVID-19 precautions, the completion of the vaccination with the recommended dose in health-care workers, the arrangement of working and surgery hours, polymerase chain reaction scanning, and how the applications will be made. Mask–distance–hygiene and vaccination applications should be continued.

Keywords: Omicron, COVID-19, pediatric surgery, infection control measures

Introduction

Since the beginning of the COVID-19 pandemic, approaches in terms of the course of the disease in children and recommendations for approach in pediatric surgery are generally presented with limited data.[1] Recently, the new wave in the pandemic caused by the Omicron variant raises new questions due to the transmission kinetics and the different clinical features of this variant. In general, it is stated that the Omicron variant is more contagious, can escape from the immune response developed with vaccines or disease, and has a milder clinical course. In one of the recent studies, it was determined with the artificial intelligence model that the Omicron variant is 10 times and 2.8 times more infectious than the original virus and the Delta variant, respectively. Also, it was demonstrated that it can evade the antibody response that develops with vaccines at a rate of 88%.[2] In the medRix study investigating the current situation in the United States, 14 054 cases diagnosed with COVID-19 for the first time during the Omicron-induced period (27.7% pediatric patients) were examined and compared with 563 884 patients in the Delta variant period.[3] When pediatric age groups are compared, emergency room admission, hospitalization, and intensive care unit admission were significantly lower with the Omicron variant. These data are also consistent with the data in a large-scale study comparing hospitalizations in South Africa, where the Omicron variant first appeared and spread.[4] In this study, it was also determined that the median hospital stay (7 to 8 days in the previous waves) decreased to 3 days in the Omicron-induced wave. While the mortality rate ranged from 19.7% to 29.1% in hospitalized patients in the other waves, it decreased to 2.7% in this period. The authors noted that further studies are needed to determine whether these findings are due to acquired immunity or the less virulent nature of the Omicron variant.

In general, it is observed that many pediatric patients are admitted to hospitals due to the Omicron variant. However, the findings show that this is due to the fact that children, as unvaccinated and susceptible population, are more prone to infections, and that the Omicron variant does not lead to a more severe clinical course in children.[5] The evaluation of the first data obtained from the United States and South Africa demonstrated that the number of hospitalized children, especially those under the age of 1, increased; however, it has been stated that the course of these cases may be milder.[6] In addition, it is noted that the increase of other viruses may be important in this evaluation.

An important issue regarding the Omicron variant is the trouble that can develop during the provision of health-care services due to its rapid spread and clustering experienced especially among health-care professionals. For example, although the diagnosis of COVID-19 in 7 physicians in the Pediatric Surgery Department during a week created a temporary disruption in the provision of services in this unit, the problem was resolved in a short time with the measures taken.

As a result of these developments, the World Health Organization (WHO) and the United States Centers for Disease

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Corresponding author: Pakize Aygün, Cerrahpasa Faculty of Medicine, Hospital Infection Control Committee, Istanbul, Turkey
e-mail: pakizeaygun@gmail.com
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Control and Prevention (CDC) have made new recommendations on the prevention of the spread of COVID-19 in health institutions.[7,8] Apart from the continuation of the WHO's routine recommendations, the use of respirators (N-95/FFP-2) is recommended in the emergency room, intensive care units, and units caring for COVID-19 patients, even when aerosol-generating procedures are not performed. However, this recommendation was made on the grounds that the available evidence on this issue is weak. On the other hand, CDC recommends reducing the isolation period to 7 days or even 5 days with a negative polymerase chain reaction (PCR) test in vaccinated, asymptomatic health-care workers and cancelling postcontact quarantine practice. The Ministry of Health has also made an arrangement in accordance with these recommendations.[9]

In this period, when the COVID-19 pandemic has evolved to a new stage due to the Omicron variant, the differences in the clinical findings of Omicron in children and the prognosis in pediatric patients—especially those who underwent surgery—are not yet known. Another problem in this period is the rapid increase in viral respiratory tract infections (influenza, RSV infections, etc.) other than COVID-19, especially in children, and development of epidemics. At this stage, it will not be possible to apply triage practices by questioning the clinical findings. Another issue that may be important especially in surgical clinics is the possibility of transmission of SARS-CoV-2 virus through feces. Although it has been shown that the virus can be detected in the feces for a longer period of time and it has been suggested that isolation times may be determined according to virus detection by PCR test in the feces, this practice is not included in the guidelines.[10,11] In addition, COVID-19 vaccination practices have just begun in the pediatric age group and are progressing slowly compared to adults. Therefore, it can be thought that Omicron and its later variants may spread more rapidly in children. Therefore, pediatric surgery clinics carry an increasing risk.[12]

The recommendations that can be applied in this period in pediatric surgery clinics are listed below[1,13,14]:

- Considering that COVID-19 will continue during this period and beyond, arrangements should be made to ensure that all employees apply the necessary isolation recommendations while providing health care to COVID-19 patients and to turn these measures into a routine practice.
- Routine COVID-19 vaccination and recommended booster doses should be provided to health-care workers. It should not be forgotten that the continuity of precautions should be ensured since the vaccine does not provide adequate protection against infection, especially for the Omicron variant.
- The role of social areas in the transmission of COVID-19 to health-care workers is at the forefront. For this reason, appropriate ventilation should be provided in the resting and dining areas of the health-care workers in the units, and working hours should be arranged to reduce crowding in social areas.
- Clinics should make different working arrangements according to the increasing and decreasing prevalence of the pandemic. Especially during the increasing prevalence period of the pandemic (prevalence 2% and above), weekly work arrangements including the determination of different surgical teams and giving rest to every other team as a precaution can prevent the whole system from collapsing.
- Postponing elective operations should be considered in the period of increasing prevalence.
- Arrangements should be made to shorten the length of stay in the ward before and after the operation.
- It is recommended to screen for COVID-19 with a PCR test result of 72 hours ago at the latest. It is recommended that the child and family be questioned in terms of symptoms before the operation (preferably in the evening before the intervention, by telephone) and, in suspicious cases, the PCR test should be repeated immediately before the intervention. It is not recommended to use antigen tests for this purpose.[15]
- Preoperative home isolation is not recommended, as it is generally not successful. During this period, the information of the child and family members about infection control should be preferred.
- On the preoperative telephone call, information should be given about the precautions to be taken in the hospital and the risk of COVID-19 transmission while staying in the hospital.
- Preferably, a separate operating room with negative pressure should be created for the procedures of pediatric cases diagnosed with COVID-19. When such an operating room cannot be established and emergency cases diagnosed/suspected with COVID-19 have to be operated, or in situations where the risk is highest such as intubation/extubation, it should be ensured that the least number of people are present in the room. If a special COVID-19 operating room cannot be created, new cases should not be accepted before the ventilation of the room is completed (usually 20-30 minutes) after the operation.
- If a patient has been diagnosed with COVID-19 in any ward, transfer of the patient to the COVID-19 ward is recommended. But since this will not be possible during the increasing periods of the pandemic, arrangements should be made to isolate and monitor these patients in the relevant ward (private room, separation of caregivers, and adequate respirators).
- It is recommended that visitors be completely restricted during the escalating period of the pandemic.
- It should be ensured that those who will remain as companions are screened by PCR. These persons should be informed about protective measures and that they should always wear a surgical mask.
- When a patient/companion or health-care worker is diagnosed with COVID-19 in the ward, screening should be done and arrangements should be made with the Hospital Infection Control Committees.
- Mask, distance, hygiene, and vaccination are the keys to get rid of COVID-19 and the Omicron variant.

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