

Objective

SARS-CoV-2 Omicron variant has become dominant in many countries, and a significant increase in the number of cases has been noted due to this highly contagious variant. This study aimed to determine the changes in case numbers, age distribution and hospitalized patients' characteristics in children with COVID-19 by comparing the Omicron variant that was dominant before.

Method

5647 pediatric patients with SARS-CoV-2 PCR positive between 11 March 2020 and 28 February 2021 at Ege University Hospital were included in the study. Two time periods of 2.5 months were determined: Omicron predominant period (16 December 2021 and 28 February 2022) and the pre-Omicron period (1 October and 15 December 2021). The information was obtained from the files of patients retrospectively.

Graphic 1: Number of SARS-CoV-2 PCR(+) children by months in Ege University Hospital



Results

The Omicron variant caused a significant increase in pediatric patients after December 15, 2021 (Graphic 1). There were 2893 pediatric patients since the beginning of the pandemic, while 2754 pediatric patients after the Omicron variant only the 2.5 months. While the test positivity rate was 10.4% on average before the Omicron, it increased to 30.37% on average after Omicron (Graphic 2). The comparison of the epidemiological characteristics of the Omicron and the pre-Omicron period is given in Table 1. In the Omicron period, 17.1% of the cases were 0-4 years old, and 0-6 months was 3.9%. While the disease was more common in children over 5 years old in the pre-Omicron period, a 4.6-fold increase was observed in 0-4 years after Omicron. Children under the age of 5 constitute 51.9% of the hospitalized children; a 4.5-fold increase occurred in the Omicron period. While hospitalization rates increased after the Omicron, no significant difference was found in intensive care unit admission. There was a significant decrease in the number of patients receiving oxygen and the need for mechanical ventilation.

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Graphic 2: Test positivity rate in children by month at Ege University Hospital



Conclusion

The number of cases in children increased with the effect of the Omicron variant, especially the increase was more pronounced between 0-4 years of age. Despite this increase in the cases, no serious increase was observed in the severity of the disease, but a decrease in pneumonia, oxygen demand, and mechanical ventilator requirement was observed. While the number of tests decreased, test positivity rates increased.

Key Words: COVID-19, children, Omicron

Table 1: Comparison of pre-Omicron and Omicron period

| | Pre-Omicron period (1 November – 15 December 2021) | Omicron period (16 December 2021-28 February 2022) | p | OR (95% confidence interval) |
|-------------------------------------|---|---|------------------|----------------------------------|
| Case numbers (n) | 1289 | 2754 | | |
| Mean age (years, mean ± SD) | 10,59 ± 3,91 | 9,8 ± 4,81 | 0,001 | |
| Age groups (n,%) | | | | |
| 0-4 years | 102 (7.9) | 472 (17.1) | <0.001 | 2.4 (1.9-3.01) |
| 5-9 years | 328 (25.4) | 679 (24.4) | 0.588 | |
| 10-14 years | 666 (51.7) | 1067 (38.7) | <0.001 | 0.592 (0.518-0.676) |
| 15-18 years | 193 (15) | 536 (19.5) | 0.592 | |
| Male (n,%) | 622 (48.3) | 1382 (50.2) | 0.253 | |
| Underlying disease (n,%) | 37 (2.9) | 67 (2.4) | 0.415 | |
| Hospitalization (n,%) | 32 (2.5) | 104 (3.8) | 0.033 | 1.540 (1.031-2.304) |
| PICU admission (n,%) | 9 (0.7) | 12 (0.4) | 0.279 | |
| Pneumonia (n,%) | 11 (35.5) | 25 (25) | 0.253 | |
| Oxygen demand (n,%) | 10 (32.3) | 14 (14) | 0.022 | 0.342 (0.133-0.876) |
| Mechanical ventilation (n,%) | 6 (19.4) | 7 (7) | 0.044 | 0.314 (0.097-1.017) |
| Hospital stay (days, mean ± SD) | 8.96±8.34 | 7.87±6.13 | 0.696 | |
| COVID related hospitalization (n,%) | 24 (77.4) | 68 (68) | 0.316 | |
| Mortality | 0 | 2(0.1) | 0,464 | |