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Clinical Impact of COVID-19 on Turkish Children with Neurological Diseases: One Centre Experience

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Background:

'Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)' is the causative agent of the new type of coronavirus disease (COVID-19). Data on how COVID-19 affects children with neurological and neuromuscular disorders such as cerebral palsy is limited. This study aims to explore the effects of COVID-19 in children with neurological and neuromuscular disorders.

Material and Methods

A retrospective study was conducted at State Hospital of Denizli, Department of Paediatric Infectious Disease. Paediatric patients diagnosed with COVID-19 who were hospitalized between March 18, 2020 and January 18, 2021 were included in the study. Children were divided into two groups: those with (group I) and without neurological and /or neuromuscular disorders (group II). The demographic information of the two groups, sources of COVID-19 transmission, duration of symptoms before admission to the hospital, clinical and laboratory findings, treatments, length of stay in hospital and intensive care unit, and prognoses were compared.

Results

There was no difference between group I and group II in terms of demographic characteristics other than gender. Male cases were more than female cases in group I; however female cases were more than male cases in the other group (p<0,001). The virus was transmitted to the children in both groups mostly from an individual in the home (13 vs. 198; 68.4%, 81.5%). There was no difference between group I and group II in terms of presence of symptoms (18 vs. 208; 94.7% vs. 85.6%) (p=0,27). The most common symptoms were fever (89,5%; 71.2%) and cough (52.6%; 36,2%) in both groups. The difference between group I and group II was significant in terms of seizure (47.3%; 1,7%), dyspnoea (36.8%, 6.2%) and number of days with fever (2.6±1.9; 1.58±1.42) (p<0,001, p<0,001, p=0,02). While hypoxemia (7, 11; 36.8%, 4.5%) and abnormal auscultation findings (8, 44; 42.1%, 18.1%) were more common in children in group I, hypertension was more common in group II (0, 8; 0%, 3.3%). Blood lymphocyte count (p=0,001), serum albümin (p<0,001) values of patients in group I were lower; and serum crp (p=0,01), creatinin kinase (p=0,04) values of patients in group I were higher than patients in group II. Lung involvement of COVID-19 was found to be more frequent and more severe in group I (p=0,04). The frequency of hospitalization in the intensive care unit (p<0,001) and application of NIMV (p<0,001); the number of days followed-up in the intensive care (p<0,001) and in the hospital (p=0,02) of the patients in group I were higher than those in group II.

Conclusion

It is recognized that children with underlying neurological and/or neuromuscular diseases are severely affected by COVID-19. In order to mitigate pandemic effects, the outpatient follow-up and treatment methods of these children should be reviewed, and strategies such as telemedicine and telerehabilitation to minimize transmission should be developed for future pandemics.

Keywords:

Children, COVID-19, cerebral palsy, neuromuscular diseases, seizure, epilepsy, pandemic

Biography

Dicle Sener Okur was born at 1980 in Ankara, Turkey. He/She has graduated from Ege University Faculty of Medicine at 2004, between 2004-2010 worked in Istanbul University, Istanbul Faculty of Medicine, Department of Pediatrics. In 2014, he/she has graduated from Istanbul University, Cerrahpasa Faculty of Medicine, Department of Pediatrics as Pediatric Infectious Diseases specialist.

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