Acute Neurological complications and risk factors for encephalitis in COVID-19 children: a retrospective cohort study

INTRODUCTION

Respiratory Syndrome Severe Acute 2 (SARS-CoV-2) is Coronavirus associated with both acute infections and neurological symptoms. Neurological complications in pediatric cases vary depending on the patient's age and comorbidities. This study aimed to provide a comprehensive overview of neurological complications and risk factors for encephalitis in pediatric patients with SARS-CoV-2.

We retrospectively reviewed the medical records of pediatric inpatients presenting with acute neurological complications who were diagnosed with SARS-CoV-2 via real-time reverse transcription polymerase chain reaction (RT-PCR) assay or a positive SARS-CoV-2 antigen self-test between December 16, 2022, and December 31, 2022.

Out of 42 confirmed SARS-CoV-2 positive patients, acute neurological complications were observed, including simple febrile seizure (38.0%), complex febrile seizure (30.9%), seizure without fever (9.5%), unclassified febrile seizure (4.6%), headache (2.3%), infectious toxic encephalopathy (4.6%), and encephalitis (16.7%). Impaired consciousness has been identified as an independent risk factor for encephalitis in patients with seizures. A seizure duration exceeding 10 min and meningeal irritation were associated with an increased likelihood of encephalitis.

Risk factor for encephalitis or encephalitis/encephalopathy in seizure patients with COVID-19

Duration of per Seizure over 10minuts OR

impaired consciousness

OR 1

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MATERIALS&METHODS

RESULTS

encephalitis	encephalitis/encephalopathy
4.37(0.34-54.7) P=0.253	OR 2.25(0.23-21.20) P=0.479
17.0(1.50-191.5) P=0.022	OR 6.0(0.56-63.98) P=0.138



CONCLUSIONS

These findings underscore the importance of seizures as acute neurological manifestations in hospitalized pediatric patients with COVID-19. Clinicians should be vigilant, especially when patients display impaired consciousness, which has emerged as a pivotal risk factor for encephalitis. Furthermore, seizures exceeding a 10-minute duration or those accompanied by meningeal irritation signs raise concerns for potential should encephalitis.

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