Neurological manifestations of SARS-CoV-2 infection in hospitalised children and adolescents in the UK: a prospective national cohort study.
Lancet Child Adolesc Health. 2021 Sep;5(9):631-641.

Background: The spectrum of neurological and psychiatric complications associated with pediatric SARS-CoV-2 infection is poorly understood. Aim of study was to analyze the range and prevalence of these complications in hospitalized children and adolescents.

Methods: Prospective national cohort study in the UK using an online network of secure rapid-response notification portals. Paediatric neurologists notified any children and adolescents (age <18 years) admitted to hospital with neurological or psychiatric disorders. Patients were excluded if they did not have a neurological consultation or neurological investigations or both, or did not meet the definition for confirmed SARS-CoV-2 infection (a positive PCR of respiratory or spinal fluid samples, serology for anti-SARS-CoV-2 IgG, or both), or the Royal College of Paediatrics and Child Health criteria for Paediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2 (PIMS-TS)also known as multisystem inflammatory syndrome in children (MIS-C). Patients were classifiedas having either primary neurological disorder associated with COVID-19 (COVID-19 neurology group) or PIMS-TS with neurological features (PIMS-TS neurology group)

ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet

Neurological manifestations of SARS-CoV-2 infection in hospitalized children

Results: 52 out of 1334 COVID-19 hospitalized cases (2nd Apr 2020 - Feb 1st 2021) had neurological manifestations. Estimated prevalence was 3·8 cases /100 pediatric patients.

·Median age was 9 years (range 1–17 years)

·12 (23%) patients had respiratory symptoms at admission

·8 (15%) patients presented with isolated neurological or psychiatric features (PCR for respiratory secretions was positive for SARS-CoV-2).

·Cases were classified into two groups: 27 (52%) in COVID-19 neurology group and 25 (48%) into PIMS-TS neurology group. Neurological disorders were clearly different in the two groups.

·Recognized neuro-immune disorders more common in COVID-19 neurology group (48% Vs < 1% in PIMS-TS neurology; p=0·0003). Common neuro-immune disorders seen were : Guillain-Barré syndrome (n=5); acute disseminated encephalomyelitis (ADEM) in 4 patients(3 had myelin oligodendrocyte glycoprotein (MOG) antibodies); other acute demyelinating syndromes (n=3) and autoimmune encephalitis(n=1). Status epilepticus, movement disorders, psychosis, isolated encephalopathy, and transient ischaemic attack were also seen.

·More patients in PIMS-TS neurology had encephalopathy (80% Vs 52% in COVID-19 neurology; p=0.0048), intensive care admissions (88% Vs 22% in COVID-19 neurology; p=0·0001), systemic features(100% Vs 56% in COVID-19 neurology p=0.023), abnormal neuro-imaging (74% Vs 44% in COVID-19 neurology p=0.036) and received immunomodulatory treatment (88% vs 44% in COVID-19 neurology; p=0·045).

·In-spite of higher intensive care need in PIMS-TS, the overall outcome was similar in both groups. (Discharged with disability ; COVID-19 neurology (37% Vs 28% PIMS-TS;p=0.048)

Conclusions: Neurological manifestations are different in patients without PIMS-TS versus those with PIMS-TS.

Key-Message: Identification of clear differences between two groups could help physicians in management of patients.

EXPERT COMMENT

“Although uncommon yet a wide spectrum of neurological complications are being reported in children with COVID-19. Children with severe disease or multi-system inflammatory syndrome (MIS-C) are at a higher risk of developing neurological complication. Neurological illness can develop during or after recovery from COVID-19 . Therefore all children presenting with acute neurological illness must be screened for COVID-19.”

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With warm regards,

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