

Neurologic Care of COVID-19 in children.

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Background & Objectives: Most children with SARS-CoV-2 infection have relatively mild clinical symptoms as compared to adults. Although severe cases associated with multi-organ involvement are also reported. This article highlights the various neurological manifestation associated with COVID -19 in children.

Methods: It is a systemic review of 21 studies, involving 3,707 children studying the neurological complications in children affected with COVID- 19.

ACADEMIC P.E.A.R.L.S**P**ediatric **E**vidence **A**nd **R**esearch **L**earning **S**nippet**Pediatric Neurologic Aspects of COVID-19**

Results: Out of 3,707 children, 582 (16%) had non specific neurological symptoms, such as headache and fatigue, and 42 (1%) had specific neurological involvement including encephalopathy (25), meningeal signs (17), and/or seizures (12), which were more common in children with severe illness. Very rarely, Guillain-Barre syndrome, cranial nerve palsies, or intracranial hemorrhage were reported (6).

Encephalopathy : It is associated with children having multisystem inflammatory syndrome. It can be associated with cerebellar and brainstem signs and muscle weakness. MRI may show involvement of splenium of corpus callosum. EEG generally has slow background activity .CSF may show few cells or may be normal.

Inflammatory Central Nervous System Lesions : The multisystem inflammatory syndrome is related to SARS-CoV-2 by a Kawasaki- like illness with persistent fever and multiorgan involvement. MRI showed varied presentation with involvement of bilateral thalamic nuclei involvement as in acute necrotising encephalopathy. Spinal cord involvement is also reported associated with respiratory failure related to generalised motor weakness. Corpus callosum splenial lesions are predominantly observed in children with multisystem inflammatory syndrome.

Seizures: Seizures associated with SARS-Cov-2 infection are usually acute symptomatic and associated with febrile episodes. Seizures have been reported as early as first months of life, with or without fever. EEG and MRI brain is generally normal in the affected cases. Genetic predisposition has been associated in few cases.

Stroke: Stroke in children due to SARS-CoV-2 infection is exceptional ,in contrast to adults, in which it is more common as other risk factors associated with adults are absent in children.. It may present without any fever or MIS-C association.

Hyposmia and Hypogeusia: In children hyposmia and hypogeusia can be present isolated or together, in the absence of other symptomatology as the presenting symptom.

Guillain Barre Syndrome: It has been reported in 2 children presenting as both acute demyelinating and axonal neuropathy. Both responded well to intravenous immunoglobulin.

Key message: Neurological manifestation even though rare are known to be associated with SARS-CoV-2. The typical MRI finding and association to genetic predisposing factors should be considered while treating pediatric cases

EXPERT COMMENT

“This systemic review illustrates the varied neurological presentation associated with SARS-CoV-2 in children. As the etiopathogenesis of manifestation is different in children as compared to adults, genetic and metabolic association should also be sought for .”

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With warm regards,

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Reference

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