Neurological complications in children with COVID-19 infection

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Abstract

Background: Many studies suggest a mild course of COVID-19 infection in children. Severe complications with nervous system involvement associated with thrombotic and neurodestructive phenomena are reported. The aims of the study were to analyze the type of neurological complications associated with COVID-19 infection in children and to establish any age-related correlations.
Material and methods: A group of 67 children diagnosed with SARS-CoV2 was analyzed. The nervous system involvement was assessed by various diagnostic methods, such as EEG, CT and / or brain MRI, psychological counseling. The SPSS program was used for statistical analysis.
Results: Nonspecific neurological complications were registered in 40 cases (53.7%). They included headache – 35%, myalgias – 22.5%, anosmia – 17.5%, behavioral disorders – 12.5%, neurotic anorexia – 7.5%, mental disorders – 5%. Specific neurological complications were registered in 27 cases (46.3%), out of which: leukoencephalitis – 25.9%, Status epilepticus – 14.8%, toxic encephalopathy – 14.8%, cerebellitis – 11%, stroke – 11%, polyradiculoneuropathy – 7.4% , uncontrolled epilepsy – 7.4%, inferior flaccid monoplegia – 1 case (3.7%), transverse cervical myelitis – 1 case. Combined pathologies (leukoencephalitis with mixed stroke and venous sinus thrombosis, impaired vision) were registered in 3 cases. Severe cases were predominantly found in young children – 19 (28.4%). Severe neurological consequences were registered in 17 children (25.4%).
Conclusions: The SARS-CoV 2 virus affects the CNS in children and can sometimes begin with isolated CNS lesions. Young children are at higher risk of developing seizures, encephalopathy and other severe complications from SARS-CoV-2 infection. Further studies on COVID-19 infection are needed to elucidate the frequency of infection and disease forms in children population.
Key words: children, nervous system, complications, infection, Covid-19.

Drug-resistant epilepsies in children: clinical case

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Abstract

Background: Refractory epilepsy is estimated to affect 10-20% of children diagnosed with epilepsy. The impact of drug-resistant epilepsy can have a profound effect on education abilities, cognitive functioning presiding over intellectual disabilities, psychiatric comorbidity, physical injury, sudden death in epilepsy and poor quality of life. Various predictors of drug resistance have been identified; however, the exact prediction factor remains a challenge. The aim of the study is to present a case of drug-resistant epilepsy case with polymorphic seizures and various electroencephalographic video patterns.
Material and methods: observational study of the clinical case of drug resistance in children.
Results: The clinical case of the child with drug-resistant epilepsy, manifested by polymorphism crisis was confirmed by the video EEG monitoring. The 3.0T brain MRI epilepsy protocol revealed the structural thinning of the white matter of the cerebral hemispheres, periventricular cystic defects and diffuse periventricular gliosis changes with diffuse enlargement of the ventricular and cisternae cerebral systems and bilateral reduction of hippocampal areas, atrophic type. Treatment of the child included ACTH, Valproic acid, Levetiracetam, Perampanel, but freedom from seizures was not achieved. The prognosis remained reserved.
Conclusions: despite the antiepileptic drug treatment performed according to ILAE guidelines, the child continues to develop polymorphic epileptic seizures. The drug-resistant epilepsy is dependent on the child's age, type of seizures, electroencephalographic appearance, the presence of structural changes in the brain.
Key words: drug-resistant, epilepsy, child, refractory epilepsy.