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POINT OF VIEW

Potential silent damage of the COVID-19 pandemic in children with neurodevelopmental disorders and cerebral palsy

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Abstract

The literature points out that COVID-19 preferentially affects the adult and elderly population, with little repercussion among children. We present our concern regarding the silent damage of the COVID-19 pandemic among patients with neurodevelopmental disorders and cerebral palsy. The interruption of rehabilitation treatment, changes of daily routine, and overuse of screen technology has contributed to a higher incidence of psychiatric and sleep disorders in patients with neurodevelopmental disorder and cerebral palsy. These factors are likely to lead to a higher occurrence of pseudo-regression among patients with cerebral palsy. It is necessary to take a special look at the comprehensive health care of these children, encouraging the use of telemedicine and telerehabilitation tools.

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The pandemic caused by the SARS-CoV2 virus, with epicenter in the province of Wuhan in China, has affected millions of persons worldwide. Its main symptoms are related to the respiratory system, although its clinical spectrum is quite variable, with gastrointestinal (abdominal pain, diarrhea), vascular (deep vein thrombosis), neurological (headache, stroke, cerebral venous thrombosis) and psychiatric symptoms (delirium and behavioral symptoms)^{1,2}. Epidemiological surveys point to lesser disease in the pediatric population, with most cases being paucisymptomatic or even asymptomatic³. We are concerned about the indirect damage caused by the social isolation imposed by the pandemic on patients followed at the children's neurology outpatient clinic, with special emphasis on those with neurodevelopmental disorder and cerebral palsy (CP).

As a way to contain the viral spread, the World Health Organization (WHO) has recommended measures that promote social isolation, something that, to a greater or lesser extent, has been implemented in most countries of the world. In the local Brazilian reality, it is necessary to better assess the potential negative impacts on the health of children being monitored at the pediatric neurology outpatient clinic. The impossibility of carrying out rehabilitation treatments (psychotherapy, speech therapy, occupational therapy, physical therapy, psychopedagogical monitoring, hippotherapy, among others) has contributed to curb functional gains, as well as exacerbate comorbid psychiatric disorders or predispose to their manifestation⁴⁻⁶. Although this demand has been partially attenuated more recently with the installation of telehealth and distance care facilities, the management of outpatient neuropsychiatric patients has been challenging, as is the case in the rest of the world⁵⁻⁸. This concern has been shared by other medical colleagues who also serve this population, as well as parents and caregivers.

Neurodevelopmental disorders are characterized by deficits that cause impairment in personal, social or academic functioning, and arise during neurological development, such as autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), intellectual disability (ID), specific learning disorders (dyslexia, dyscalculia) and motor disorders (nervous tics, Tourette's syndrome)⁹. The literature provides alarming data regarding the higher occurrence of psychiatric disorders and sleep disorders, especially behavioral insomnia, since the beginning of the pandemic^{5,6}. Children with neurodevelopmental disorders are especially susceptible to these disorders. The change in routine resulting from the interruption of school activities and the heavier use of electronic screens with exposure to blue light associated with various habits of poor sleep hygiene, have contributed to worsening the quality of sleep in these children. The negative news carried by the mainstream media, the lack of socialization and the loss of family and friends to COVID-19 has contributed to a clear increase in the diagnosis of mood disorders, social phobias,

generalized anxiety and panic syndrome - especially in children with ASD, ADHD and ID^{7,8,10-12}. More than that, it is very worrisome to diagnose these disorders even in preschoolers, because it is classically more common among adolescents or schoolchildren^{13,14}.

Finally, we highlight the children with CP in times of pandemic. CP is a chronic motor condition, secondary to non-progressive damage to a brain during its development¹⁵. Not only are patients with CP often more prone to viral infections due to greater immobility, worse nutrition and greater susceptibility to recurrent respiratory infections, but they are also in a vulnerable condition and may suffer even more from the indirect effects of the pandemic^{16,17}. There has been a worse control of epileptic seizures among children with CP and symptomatic epilepsy, worsening of sleep quality, worsening of spasticity and even greater occurrence of pseudo-regression, with clear emotional and behavioral consequences¹⁷. It is important to distinguish neurodevelopment regression - which denotes a disease progression, something that classically does not happen in CP - from pseudo-regression, in which there is a loss of developmental milestones due to environmental causes or secondary damage¹⁸. The absence of an outpatient medical routine (pediatrics, neuropsychiatry, physiatry, among others), rehabilitation therapies (especially physiotherapy, speech therapy) and interventional therapies (injection of botulinum toxin), in addition to the increased incidence of mood disorders in these patients are the main elements that have led to an increase in pseudo-regression, although the literature still needs more studies with this approach.

Therefore, it is necessary to take a special look at children with neurodevelopmental disorder and CP during the COVID-19 pandemic. We have seen with great hope the dedication of healthcare professionals to minimize the indirect damage caused by the social withdrawal in these patients. We also believe that the combination of using new tools of tele-rehabilitation and the gradual and protected return of face-to-face care (as soon as possible) are some of the possible means. Let us walk this path together!

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