

# Neuropsychiatric phenotype of post-COVID 19 neurological syndrome: broadening the concept

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## Dear editor

The evolution of the COVID-19 pandemic has wreaked havoc in all areas of human development.<sup>1,2</sup> Although it was thought that the first phase of the pandemic was going to be the most critical, the reality seems to be different, and it is that the sequels left by the organic affection by the same disease of the COVID-19, have caused an elevation in the indicators of global disease burden.<sup>1</sup> Post-COVID-19 syndrome is a recently described entity of which much is still unknown. It is defined as the persistence or appearance of symptoms after the acute phase of COVID-19, establishing three cut-off scores, after 21 days (post-COVID acute), between one month and 3 months (post-COVID subacute) and persistence after 3 months (post-COVID chronic); and these symptoms must affect the functional capacity of the individual, which does not allow the adequate development of the activities of daily living.<sup>1,2</sup>

Many phenotypes have been described in the literature, the most named being the post-COVID 19 neurological syndrome, due to the findings of SARS-Cov-2 neurotropism and the process of active or passive neuroinflammation that can be generated during the acute phase of this disease, even in the absence of neurological symptoms.<sup>3</sup> Considering that the nervous system is very susceptible to injury and slow and unsafe recovery, it is one of the most serious phenotypes of attention.<sup>3</sup> Older patients with comorbidities have a higher risk of developing the severe COVID-19 phenotype, and in these patients, neuroplasticity is reduced due to age and microvascular injury from vascular enlargement and atherosclerosis.<sup>3</sup> This leads us to think about the need to follow up on the neurological integrity of all patients who undergo a definitive diagnosis of COVID-19.

However, one variable to note that may be mistaken for a primary disorder is neuropsychiatric disorders. Evidence has found that patients with both mild and severe COVID-19 phenotypes have developed neuropsychiatric disorders in the absence of sociodemographic factors that may contribute to these disorders.<sup>4,5</sup> Ignatova et al.<sup>4</sup> report a rather particular manifestation, a post-COVID 19 psychosis associated with Cotard's syndrome with a high risk of self-harm and suicide. The authors even suggest strict surveillance in patients with neuropsychiatric manifestations regardless of their cause, and establishment of an early therapeutic plan.<sup>4</sup> These manifestations may even go unnoticed in health care workers who become infected and remain asymptomatic through distress and anxiety.<sup>5</sup> This, coupled with events that are stressful in themselves, such as ethical dilemmas, barriers to care activities and lack of organizational support, constitutes a potential risk factor for the development of severe persistent neuropsychiatric disorder.<sup>5</sup>

We propose that this type of manifestations constitute a variant of the phenotype of post-COVID 19 neurological syndrome, which could be called the neuropsychiatric phenotype of post-COVID 19 neurological syndrome, and which represents a real challenge for the disciplines of neurology and psychiatry.<sup>6-8</sup> It is necessary to carry out studies aimed at investigating the behavior of this type of

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manifestations, associated factors, prognosis and long-term functional outcomes, since the post-COVID 19 neurological syndrome may worsen the prognosis of previous neurological disorders.<sup>6-8</sup> The design and support of specialized post-COVID 19 syndrome or neurorehabilitation centers is imperative to reduce the risk of loss of functional capacity of those affected.<sup>9,10</sup> This will probably be one of the most important lines of research in neurosciences in the coming years.

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## Conflicts of interest

The authors declare no conflicts of interest.

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