COVID-19-ASSOCIATED NEUROLOGICAL DAMAGE: WHAT DOES THE FUTURE HOLD?

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RESUMO

The illusion that COVID-19 is a simple viral disease in which you merely suffer from loss of taste should be clear to everyone now. An updated review, regarding neurological disorders and COVID-19, shows that a significant proportion of COVID-19 patients having neurological events. Losing a sense means that important neuronal cells are destroyed reversibly or irreversibly. Besides that, Sars-CoV-2, the virus responsible for the disease, causes further neurological damage, which has been demonstrated in many clinical studies, both in the acute phase of the disease and after a COVID-19 infection has been overcome. Due to the intense cytokine storm that damages the blood-brain barrier and the neuroinvasive nature of SARS, dysregulation occurs in the brain. This can lead to strokes, myalgias, worsening of Alzheimer's disease, Parkinson's disease, Guillain-Barre-Syndrome, but also to encephalitis, which is usually fatal. Considering the yet unknown mechanism it is necessary to characterize proteins causing neurological manifestations and to identify promising candidates, such as small molecules or phytochemicals that reduce or even prevent neuronal cell destruction. The goal is to find candidates that prevent neurodegeneration through the identification of critical proteins, subsequent screening of potential compounds, and *in vitro* testing in mini-brain models. Therefore, it is crucial to search for new treatments against brain damage and other affected organs. The prevention of neurological damage offers huge potential, as much data was gained through scientific knowledge. That includes epidemiological and clinical aspects, sequencing the disease, genomics, biochemical characterization, enzymology, and resolution of crystallographic structures of proteins that constitute the virus. In summary, in the next few years, we will have as many neurological long-term problems as we do with acute symptoms of COVID -19 disease. Due to the variety of data available, research in this area is considered very promising.

PALAVRAS-CHAVE: Sars-CoV-2, Neurology, Brain, Cytokine storm

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