

Commonness of neurological appearances in COVID-19 and their relationship with mortality Prevalencia de las manifestaciones neurológicas en COVID-19 y su asociación con la mortalidad

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The coronavirus is made up of a group of enveloped RNA viruses that cause the development of respiratory, enteric, gastrointestinal, liver and neurological diseases. SARS-CoV, identified in 2003 as a zoonotic infection in Guangdong province, China, in 2003 and MERS-CoV, identified in Jeddah, Saudi Arabia in the year 2012, belong to the beta coronavirus genus, where both agents are responsible for severe respiratory conditions. In late 2019, a group of patients with severe pneumonia was reported in Wuhan, China; identifying a coronavirus as the causal agent. This disease was named “2019-nCoV” or “COVID-19”. Given its genetic similarity to the SARS species, the causal agent was named SARS-CoV-2.

In Mexico, the first case of COVID-19 was detected on February 27th, 2020 and as of January 1st, 2021 there are approximately 1.40 million cases, out of which 1 million have recovered and 127 thousand have resulted in death.

Articles have referred to neurological manifestations or “complications” produced by SARS-CoV-2, concluding that the different neurological manifestations have been relatively similar, but with different ratios: Ling et al. mentioned symptoms in a retrospective study of 214 patients, where the manifestations were classified in 4 main groups: acute cerebrovascular disease, altered consciousness, peripheral nervous system affection and muscular manifestations.

Although much remains to be learned about the pathophysiology of COVID-19 in the central nervous system, in animal models

(murine) it has been discovered that the coronavirus OC43 has a selective tropism for neurons and is capable of using the axonal transport system as a means of neuron-to-neuron propagation, and they are also capable of inducing both acute and persistent infection in neuronal lineages, oligodendrocytes and neuroglia in humans.

In experimental studies with SARS-CoV-infected mice, it has been observed that this virus is able to enter the central nervous system through the olfactory nerves, following its path toward the thalamus and brainstem. Likewise, higher inoculum was found in the brainstem and brain compared to the amounts in lung tissue, which implies that the central nervous system is affected more frequently than the lung and it may have greater implications in terms of mortality rate.

Although some articles have concluded that the neurotropism of the coronavirus is common, they do not always grant due relevance to neurological manifestations, given that they sometimes go unnoticed or because general, respiratory, renal, cardiovascular manifestations, among others, tend to receive more attention from the clinician in connection to the early mortality that they develop; however, paying attention to them could provide us with a benchmark to identify patients at risk of intubation or death. This article presents the main neurological manifestations exhibited by patients at the “1 de Octubre” Hospital.