



# COVID-19 Neurological Manifestations

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## Dear Editor,

In December 2019, numerous severe pneumonia without any specific etiology found in Wuhan, China, and after a while, widespread to all seven continents and became a global concern. Coronaviruses are a shared type of virus among humans, and animals, that cause multiple injuries and infections in both; some can adapt and survive, but not all of them. This letter aimed to highlight the neurological manifestations of cases with COVID-19 infection. Based on the recently published studies, men admitted to hospitals more than women,<sup>1</sup> individuals with underlying pathology, including cardiovascular disease, diabetes, and respiratory manifestations, are at higher risk. Investigations have already confirmed the neurological involvement in SARS-CoV and MERS-CoV infections.<sup>2</sup> COVID-19 infection can cause various demonstrations, such as fever, myalgia, diarrhea, and cough.<sup>3</sup> Although COVID-19 mainly causes the severe respiratory syndrome, which is one of the most important causes of death, the latest studies demonstrate, in extreme cases, neurological manifestation is critical. An investigation conducted by Bo Hu et al. in China demonstrate the higher incidence of neurological symptom and sign in severe cases of COVID-19 infection.<sup>4</sup> Neurological manifestation of COVID-19 infection classified into two categories: central nervous system (CNS) symptoms and peripheral nervous system (PNS) symptoms. CNS symptoms included dizziness, headache, impaired consciousness, acute cerebrovascular disease, ataxia, and epilepsy. However, PNS symptoms are less severe and introduced as hyposmia, hypoplasia, neuralgia, and hypogeusia. In term

of laboratory findings, based on the clinical symptoms and sign, patients classified into severe and non-severe categories; in patients with PNS involvement, laboratory findings are not helpful, however, in patients with CNS engagement, severe cases demonstrate lower lymphocyte and platelet counts besides of higher blood urea nitrogen levels contrasted individuals without CNS involvement or with non-severe CNS involvement.<sup>3</sup>

Even though COVID-19 respiratory infections and cardiovascular events are the leading cause of mortality, clinical awareness of physicians about neurological accidents, reduce the mortality rate in infected individuals. Future investigations on the determination of the specific risk factors or protective determinants concerning neurological events are needed to diminish the risk of these complications in COVID-19 infection.

## References

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