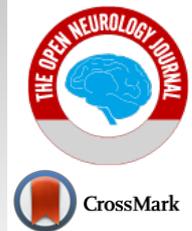




The Open Neurology Journal

Content list available at: <https://openneurologyjournal.com>



LETTER

COVID-19 Crisis: A Neurological Disorder Point of View

Faisal Muhammad^{1,*}

¹Department of Public Health, Faculty of Allied Health Sciences, Daffodil International University, Dhaka, Bangladesh

Keywords: COVID-19, Pandemic, Neurological Disorder, Global Health, Immune system, Acute respiratory syndrome.

Article History

Received: December 04, 2020

Revised: January 13, 2021

Accepted: January 14, 2021

Dear Editor

The novel coronavirus disease 2019 (COVID-19) is spreading across the globe. Many studies that have recently been conducted confirmed the presence of some neurological symptoms in COVID-19 cases. The novel COVID-19 virus seems not to be neurotropic; however, the earlier discussion regarding this issue shows no solid evidence to change this view [1]. The impact of the virus on the brain and nervous system has been reported in some viral diseases, such as HIV, therefore, severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) might have an impact on the brain as well as the nervous system. The neurological impacts in COVID-19 cases are more likely the result of overactive immune response rather than brain invasion, as stated by some doctors [2, 3]. A recent study from Wuhan, China, among 214 patients, reported that about 36.4% had neurological complications [4]. The neurological patients are expected to be at increased risk beyond that of being diabetic, older, male, or suffering from heart disease, etc. However, there are no comprehensible data regarding the outcomes of patients with pre-existing neurological diseases or their treatment, and specifically the effects of immunosuppression [4]. In some more extensive studies conducted in France and China, about 36.0% of the COVID-19 patients had neurological symptoms [5, 6]. However, many of these symptoms could be a result of the robust immune system [7].

The COVID-19 cases keep rising worldwide, and an increase in the number of neurological symptoms has been reported. The common neurological symptoms that have been reported in COVID-19 patients are; dizziness, headache, myalgia, and anosmia, as well as the cases of encephalitis, encephalopathy, stroke, necrotizing hemorrhagic encephalopathy, epileptic seizures, rhabdomyolysis, and Guillain-Barre

syndrome (GBS) [8]. Other symptoms such as loss of taste or smell, muscle weakness, and hallucinations were also observed [7]. Some changes in consciousness were also found in severe cases and reported to persist after recovery [7]. The SARS-CoV-2 infection causes a very strong response by the immune system [7]. This immune system response may directly cause neurological disorders in the form of GBS [7]. Stroke is also a condition that has been occurring at a higher incidence in patients with involvement in the body by this novel coronavirus. And the mechanism by which stroke occurs in the brain is unclear in this circumstance [9]. There are several cases of COVID-19 patients complicated by cerebral hemorrhages, however, there is limited information to prove this association. A SARS-CoV-2 was confirmed in the cerebrospinal fluid (CSF) of COVID-19 patients in China using genome sequencing [10, 11]. Impaired consciousness has so far been observed among many hospitalized COVID-19 patients. There can be different underlying reasons for a COVID-19 patient to present with altered sensorium, such as metabolic perturbation, viral encephalitis, seizures with postictal confusion, infectious, toxic encephalopathy, and stroke [10].

Neurological disorders are mostly chronic, long-term conditions. It is crucial to be aware of the likelihood of neurological manifestations of the novel COVID-19, more especially during acute illness as well as the possibility of long-term effects and the people affected may be at increased risk of the novel COVID-19. This SARS-CoV-2 is a new strain of coronavirus; still, the information is limited regarding how this strain will affect people with neurological disorders. According to the experts' assumption, those with underlying disorders may be at higher risk not only directly from the COVID-19 virus but also from being exposed to disruptions in healthcare provision [12]. Data is scarce at this point to decide if neurological disorders are directly associated with novel COVID-19. However, the experts stated that there might be an association between them [13]. Future epidemiological studies are recommended so as to explore the real incidence of these

* Address correspondence to this author at the Department of Public Health, Faculty of Allied Health Sciences, Daffodil International University, Dhaka, Bangladesh; Tel: +8801723406483
E-mail: fokkanya@yahoo.com

neurological disorders, their therapeutic options as well as the pathogenic mechanisms.

REFERENCES

- [1] Carroll W. COVID-19 and World Neurology. Available from: <https://wfneurology.org/covid-19-and-world-neurology>
- [2] Wu Y, Xu X, Chen Z, *et al.* Nervous system involvement after infection with COVID-19 and other coronaviruses. *Brain Behav Immun* 2020; 87: 18-22. [<http://dx.doi.org/10.1016/j.bbi.2020.03.031>] [PMID: 32240762]
- [3] Ellul MA, Singh B, Lant S, *et al.* Neurological associations of COVID-19. *Lancet Neurol* 2020; (20): 30221-0. [<http://dx.doi.org/https://doi.org/10.1016/S1474-4422>]
- [4] Manji H, Carr AS, Brownlee WJ, Lunn MP. Neurology in the time of COVID-19. *J Neurol Neurosurg Psychiatry* 2020; 91(6): 568-70. [<http://dx.doi.org/10.1136/jnnp-2020-323414>] [PMID: 32312872]
- [5] Mao L, Jin H, Wang M, *et al.* Neurologic manifestations of hospitalized patients with coronavirus disease 2019 in Wuhan, China. *JAMA Neurol* 2020; 77(6): 683-90. [<http://dx.doi.org/10.1001/jamaneurol.2020.1127>] [PMID: 32275288]
- [6] Helms J, Kremer S, Merdji H, *et al.* Neurologic features in severe SARS-CoV-2 infection. *N Engl J Med* 2020; 382(23): 2268-70. [<http://dx.doi.org/10.1056/NEJMc2008597>] [PMID: 32294339]
- [7] Rossman J. A third of COVID-19 patients have reported neurological symptoms 2020. Available from: <https://www.weforum.org/agenda/2020/05/coronavirus-patients-neurological-symptoms-covid19>
- [8] Carod-Artal FJ. Neurological complications of coronavirus and COVID-19. *Rev Neurol* 2020; 70(9): 311-22. [<http://dx.doi.org/10.33588/rn.7009.2020179>] [PMID: 32329044]
- [9] Avula A, Nalleballe K, Narula N, *et al.* COVID-19 presenting as stroke. *Brain Behav Immun* 2020; 87: 115-9. [<http://dx.doi.org/10.1016/j.bbi.2020.04.077>] [PMID: 32360439]
- [10] Wang HY, Li XL, Yan ZR, Sun XP, Han J, Zhang BW. Potential neurological symptoms of COVID-19. *Ther Adv Neurol Disorder* 2020; 131756286420917830 [<http://dx.doi.org/10.1177/1756286420917830>] [PMID: 32284735]
- [11] Lahiri D, Ardila A. COVID-19 Pandemic: A Neurological Perspective. *Cureus* 2020; 12(4)e7889 [<http://dx.doi.org/10.7759/cureus.7889>] [PMID: 32489743]
- [12] Montalvan V, Lee J, Bueso T, De Toledo J, Rivas K. Neurological manifestations of COVID-19 and other coronavirus infections: A systematic review. *Clin Neurol Neurosurg* 2020; 194105921 [<http://dx.doi.org/10.1016/j.clineuro.2020.105921>] [PMID: 32422545]
- [13] Tsivgoulis G, Palaiodimos L, Katsanos AH, *et al.* Neurological manifestations and implications of COVID-19 pandemic. *Ther Adv Neurol Disorder* 2020; 131756286420932036 [<http://dx.doi.org/10.1177/1756286420932036>] [PMID: 32565914]

© 2021 Muhammad Faisal

This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International Public License (CC-BY 4.0), a copy of which is available at: <https://creativecommons.org/licenses/by/4.0/legalcode>. This license permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.