

COVID-19, Neurological Illness and Role of a Neurologist

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World Health Organization (WHO) has announced Coronavirus Infectious Disease (COVID-19) as pandemic due to its rapid spread around the globe. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the causative organism and the disease can present as an asymptomatic infection, mild upper respiratory tract illness, and severe viral pneumonia with respiratory failure and even lead to death in some cases [1]. Neurological manifestations of COVID-19 are being reported and the data is constantly evolving [2].

Based on the retrospective data from Wuhan, China, older age and comorbidities (hypertension, diabetes and cardiovascular disease) are risk factors for severe disease and poor outcome [3]. Laboratory abnormalities noticed in these patients are indicative of role of cellular immune deficiency, coagulation activation, myocardial injury, hepatic injury, and kidney injury [3]. Neurological manifestations were reported in up to 36.4% patients [4]. These manifestations included central nervous system (CNS) symptoms (headache, dizziness, impaired consciousness, ataxia, acute cerebrovascular disease, and epilepsy), Peripheral nervous system (PNS) symptoms (hypogeusia, hyposmia, hypoplasia and neuralgia), and skeletal muscular symptoms. Few additional small series, case reports etc. have reported large vessel strokes, Guillain-Barre Syndrome, hemorrhagic necrotizing encephalopathy and convulsive seizures [2].

During these extraordinary circumstances, neurologists need to be involved in the front line and be attentive for potential para-infectious and post-infectious neurological complications of Covid-19. Patients with certain underlying neurological conditions (older age, co-morbid medical conditions, underlying breathing issues, immunocompromised status due to ongoing treatments) are vulnerable and theoretically are at increased risk of being infected with the virus and developing more severe symptoms [2].

Disease specific organizations' websites have outlined resources and precautions for patients with underlying neurological conditions (e.g. American Migraine Foundation, Epilepsy foundation, Myasthenia Gravis Foundation of America, National MS Society, Alzheimer's Association etc.) However, there is no data till date which concludes/confirms the underlying neurological conditions as co morbid risk factor for getting Covid-19 infection or having severe disease or poor outcome. A retrospective analysis of data with regards to patients with known neurological conditions diagnosed with Covid-19 and their outcomes should help answer this question. How Covid-19 affected underlying neurological conditions -did it worsen seizure control? Did it cause Multiple Sclerosis relapse /Myasthenia gravis flare up? Did it lead to vascular occlusions due to hyper coagulable conditions etc.? What is the prevalence of COVID-19 in patients with Dementia, Parkinson's disease etc.?

Timely identification and documentation of the neurological symptoms and signs, comprehensive neurological evaluation and work up (EEG, neuroimaging, CSF studies to detect SARS-CoV-2 and autopsies when necessary) may clarify the basis of neurological impact caused by this virus [5]. Prospective studies using dedicated data extraction methods in regards to functional outcomes, cognitive recovery, changes on neuroimaging, neuropsychometric and other ancillary testing etc. will be required. It will improve our understanding about the prevalence of neurological comorbidities and pre-existing neurological disorders in patients with COVID-19. Consideration of these recommendations and ongoing revisions as necessary will be essential in the care of patients diagnosed with Covid-19.

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