# Integration of Teleneurology within the Health System to Manage Patients of Multiple Sclerosis and Other CNS Demyelinating Disorders During COVID-19 Pandemic

Sir,

The recent outbreak of coronavirus disease-19 (COVID-19) caused by Severe Acute Respiratory Syndrome – Coronavirus-2 (SARS-CoV-2) coronavirus has turned the world into a pandemonium. The pandemic that has assaulted mankind in the last four months has tendered considerable challenges to the chronically ill patients in terms of medication adherence, regular follow-ups reaching specialist care and managing the impact of illness.[1] Central nervous system (CNS) demyelinating disorders, such as Multiple sclerosis (MS), neuromyelitis optica spectrum disorders (NMOSD), Myelin oligodendrocyte glycoprotein (MOG)-associated neurological disorders (MOGAD), and other secondary demyelinating disorders require frequent follow-up visits to the neurologist for regular monitoring, assessment of response to treatment, and management of side effects.[2]

In view of COVID-19 pandemic and lockdown of the country initiated by the Government, the outpatient services were stopped at our Institute. Many of our patients do not have access to telecommunication via videoconferencing. In this context, we wanted to explore the feasibility of telephonic consultations as a strategy to ensure follow-up among a cohort of patients with MS and CNS demyelinating disorders. Our hospital is a tertiary neuropsychiatry center, with well-maintained hospital records of each patient. Each patient's case file was retrieved by the medical records personnel [Figure 1] and an attempt was done to contact the patient telephonically by the neurophysician. Few patients with psychosocial concerns were discussed with the psychiatry social work personnel.

## Clinical Profile

We initiated the telephonic call for 5 days in the second and third week of April 2020 over non-consecutive 5 days (23 h). Total of 201 (M: F-66:135) patients were contacted. Among them 142 patients were contacted; the rest 59 patients could not be contacted due to technical reasons. [calls were not connected (29), patients did not respond to the call (14), phone numbers unavailable in case records (9), and wrong telephone number available in the case record (7)]. Most of the patients were from South India (80.1%) followed by Western India (18.4%), Central India (1%), and Bangladesh (0.5%). The various CNS demyelinating disorders were: MS (61), NMOSD (40), secondary demyelination (20), MOGAD (17), and acute disseminated encephalomyelitis (ADEM-4).

Among the patients contacted the following responses were noted: (i) Predominant (116) patients (81.7%) were maintaining well. (ii) Five (3.5%) patients had a relapse; they were advised to consult the local neurologist/ physician for injectable steroids. Two patients were unable to contact any nearby hospital in view of being in a remote place. They were started on oral steroids based on their age and body weight. (iii) Persistent symptoms were noted in 13 (9.2%) patients. (iv) Nine (6.3%) patients had symptoms unrelated to demyelination in

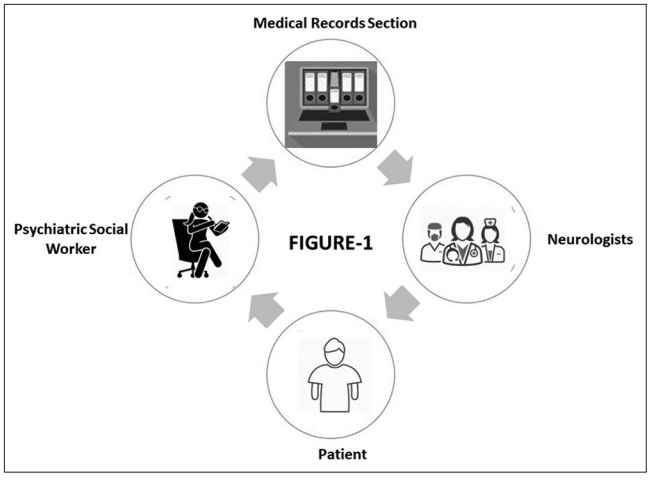


**Figure 1:** Flowchart of the team involved in the telephonic consultation

the form of urinary tract infection (4), arthralgia (2), headache (2), and rhinitis (1). They were managed with antibiotics or symptomatic therapy. These patients were again called back after one week to review their symptoms and most of them were doing well with adjustment of the medications. (v) One (0.7%) patient of NMOSD had expired. This patient was on azathioprine, had developed symptoms of urinary tract infection followed by sepsis and multiorgan dysfunction. (vi) None of the patients were affected with COVID infection.

Apart from the above neurological and systemic complaints, few of the observations made by the neurophysicians were that predominant patients expressed happiness and decrease in their anxiousness for being contacted by their treating neurophysician. Few of them were concerned about the risk of COVID infection in view of being on immunosuppressants, the fear and anxiety were addressed by the neurologists and the need for social distancing, hand hygiene, and usage of masks were re-emphasized. Twelve MS patients (8.5%) were unable to procure disease modifying agents; the same was facilitated and the medications were couriered to them. Patients who were on rituximab medications were asked to delay the medications based on the time of last dosage, CD19 testing (if it could be done). Six patients were asked to take injection rituximab after appropriate counseling.

## Psychosocial Concerns

Emotional support was provided to all the connected patients and the call was also used as an occasion to educate the patients about the need for precautionary measures against COVID-19 infection. Out of the 27 (19%) patients contacted, major concerns reported by the patients were fear and anxiety associated with worsening of symptoms ($N$ = 6), inability to come for follow-ups ($N$ = 2), delay in treatment caused considerable anxiety and fear in four respondents. In five patients, the current lockdown period led to increase in adjustment difficulties leading to interpersonal problems with family members. The psychosocial interventions carried out were psycho-education about CNS demyelinating disorders (3), linking to the nearby district hospitals ($N$ = 4). Most of the patients were happy with the telephonic follow-ups and were willing to continue the same even after the existing crisis.

Teleneurology has emerged as a viable alternative in the current global crisis, with many specialist healthcare centers adopting telecommunications as a strategy to ensure adequate patient management.[3] Teleneurological services are generally discussed in the context of geographical inaccessibility,[4] economic benefits, nature of the illness limiting mobility.[5-8] Synchronous videoconferencing, that permit "real-time" discussions between the patients, caregivers, and multidisciplinary team, has been shown to be feasible, acceptable, reduce the cost compared to personnel visit. Recent years have seen evaluation of the virtual house calls in MS care remotely conducted though audio-visual connection with the patient at home.[9,10]

The various concerns a patient of MS and CNS demyelinating disorders face are the risk of relapse, poor availability of the medications and the risk of COVID infection in a patient on immunosuppressants. To address these risks and to bridge the gap in the COVID-19 lockdown period a novel attempt was made of application of clinical skills with technological support of telephonic consultations. To our surprise it was successful in majority of patients. This bridging experience between teleconsultation by video call and telephonic consultation was an experience which brought a sigh of relief to both the patients and the neurophysician. This may be an alternative way of effective care and management during and post-COVID period. There is a need to strengthen the telehealth, telephonic consultation, and utilization of new technological support for effective doctor–patient communication.

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## Conflicts of interest

There are no conflicts of interest.

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