

Neurological Complications in Patients with COVID-19 Infection

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Abstract

Since the beginning of the pandemic, various neurological manifestations have been observed in hospitalized patients with COVID-19 infection. A recent study in New York has shown that 13.5% of patients admitted to hospital for COVID-19 infection also showed neurological symptoms and signs. These neurologic manifestations were more frequently observed in elderly individuals with co-morbidities.

Keywords: *Neurological Complications; COVID-19 Infection*

Introduction

Neurologic manifestations commonly associated with COVID-19 infection include a loss of sense of smell (anosmia), loss of sense of taste (dysgeusia), seizures, severe headache and stroke. However, it has not yet been conclusively proved how common these neurological manifestations are in hospitalized patients with COVID-19 infection and whether they significantly affect the disease course and mortality in these patients.

Clinical evidence from various worldwide studies suggests neurological manifestations in COVID-19 patients, in the wide range of 3.5% to 84%. This wide range is possibly due to the varying methodologies, study populations and varying definitions of what constitutes a neurological event, accompanied by a lack of prospective data on these varying neurological symptoms and signs.

In order to study the significance of neurological manifestations in hospitalized patients with COVID-19 infection, researchers at four hospitals in New York performed a prospective study¹ between 10 March 2020 and 20 May 2020. Patients 18 years of age and older, who were admitted with confirmed COVID-19 infection were included in the study.

For the purpose of this study, toxic and metabolic encephalopathy, stroke, hypoxic or ischemic brain injury, neuropathy, myopathy, seizures, encephalitis, myelitis, meningitis, myelopathy and movement disorders were defined as neurological diagnoses, and included in the study.

The principal outcomes of the study¹ were the prevalence of these neurological disorders in admitted COVID-19 patients and the accompanying mortality, if any. Secondary outcomes of the study included the time from onset of COVID-19 symptoms to the time of onset of neurological complications, time from onset of neurological complications to hospital admission, length of hospital stay, duration on ventilator and other COVID-19 complications.

Study Results

A total of 12,990 patients were admitted to the four hospitals during this time period and 1072 were evaluated for potential neurological problems. Of these, 948 patients were confirmed to have a neurological disorder. Of these patients with confirmed neurological disorders, 606 tested positive for COVID-19 (SARS-CoV-2) (note: of the total patient population of 12,990 who were admitted during this time frame to the four New York hospitals, 3885 patients tested positive for COVID-19, without any accompanying neurological disorders) [1].

Among COVID-19 patients who developed neurological manifestations, the most common neurological complications were toxic or metabolic encephalopathy (51%), stroke (14%), seizure (12%) and hypoxic or ischemic brain injury (11%). Among the patients diagnosed with seizures, 46% had no prior history of seizures or seizure disorders.

In this study it was observed that neurological symptoms developed a median of 2 days after the initial COVID-19 symptoms and usually before admission to hospital. 419 (69%) patients developed neurological symptoms prior to hospitalization and 10 (2%) patients developed neurological symptoms even before the common COVID-19 symptoms.

Patients with neurological manifestations were usually in the older age group, with a median age of 71 years, compared to other hospitalized COVID-19 patients who had a median age of 63 years.

It was observed that the patients with neurological manifestations were also more severely ill on admission, more likely required intubation, and had significant co-morbidities as well, which included diabetes, hypertension and past history of neurological disorders.

The inpatient mortality rate of COVID-19 patients was 35% in patients with neurological manifestations, as compared to 19% in other hospitalized COVID-19 patients without neurological symptoms.

The findings of this study are significant because it had strict prospective criteria to identify specific neurological conditions. Moreover, all the patients were examined by qualified neurologists, which further increased the accuracy of this study.

These results are therefore significant to healthcare workers who are treating COVID-19 patients manifesting with a myriad of clinical symptoms, including neurological complications.

Bibliography

1. Frontera JA Sabadia S., *et al.* "A prospective study of neurologic disorders in hospitalized COVID-19 patients in New York City". *Neurology* (2020).

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