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Functional Neurological Disorder in COVID-19 Patients

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The coronavirus disease 2019 (COVID-19)-associated neurologic complications or presentations have been declared since the first weeks of the pandemic. Studies on hospitalized patients reported many newly diagnosed COVID-19-related neurologic disorders, such as self-reported neurologic symptoms like cognitive impairment, headache, hyposmia-hypogeusia, and clinical neurologic syndromes, like stroke, status epilepticus, acute encephalopathy, Guillain-Barré syndrome, or encephalitis. Such "neuro-COVID-19" diseases have been reported with a frequency of about 8%, ranging between 1% and over 30% (1-3).

Several studies have reported robust information regarding the frequency of neuro-COVID-19 and in-hospital mortality. However, significant issues should be addressed regarding the occurrence of these diseases over time, their long-term outcome, and the effect of vaccines or treatments (4-6).

In a study by Jaime (7), the prevalence, dynamic, and long-term outcomes of neuro-COVID-19 were analyzed. A large cohort of patients was recruited from 38 centers in the Republic of San Marino and Italy over the first 70 weeks of the pandemic. This study had two phases: A retrospective phase between March 2020 and September 2020 and a prospective phase starting in October 2020, which included both baseline collection from new patients and 6 months of follow-up data for all patients recruited.

The Cohort included 1865 patients presenting with 2881 neuro-COVID disorders; the median age was 68 years, and 60% were male (7). About one-fifth of the cases showed preexisting chronic neurologic diseases, such as cerebrovascular disease (12.0%) and neurodegenerative disorders (10.1%). Self-reported neurologic symptoms included hyposmia-hypogeusia, cognitive impairment, headache, and dizziness. Major clinical neurologic syndromes were acute encephalopathy, acute ischemic stroke, Guillain-Barré syndrome, seizures and status epilepticus, hemorrhagic stroke, and encephalitis. Headache and hyposmia-hypogeusia were the most frequent symptoms during the prodromal phase of COVID-19, encephalopathy, and GBS during the respiratory phase, and cognitive impairment during recovery from COVID-19. Acute ischemic stroke, seizures, status epilepticus, hemorrhagic stroke, and encephalitis occur in either the prodromal or acute respiratory phase. Overall, a good functional outcome occurred in 64.6% of patients, although mild symptoms persisted in 41.1% of them (7).

Neurologic disorders related to COVID-19 infection, called "neuro-COVID-19," are the most controversial, alarming, and least-known aspects of this pandemic (1, 6-8). Since 2020, the strength and causality of evidence on the association, frequency, and in-hospital mortality of neuro-COVID-19 have been studied. Nonetheless, there is no evidence regarding their onset, incidence dynamics, and long-term outcomes. In a study on neuro-COVID-19 in Italy, detailed, long-term data were reported related to a large number of neuro-COVID-19 patients from the first 1.8 years of the pandemic (1.3-year recruitment + 0.5-year follow-up), which mainly were associated with the original SARS-CoV-2 virus (Wuhan-Hu-1) and its Alpha and Delta variants (1, 9).

In conclusion, neurologic diseases associated with COVID-19 showed a progressive decrease during the pandemic's early (pre-Omicron, prevaccination) stage. Favorable prolonged functional outcome was observed in most neuro-COVID-19 patients and improved over time; however, mild symptoms lasted over six months following

the infection. OVID-19 evolved rapidly, but our findings are relevant for several world regions without an extensive vaccination campaign, as well as new coronaviruses possibly seen in the future. More studies should evaluate the implications of the Omicron variant and vaccines, the socioeconomic effect of neuro-COVID-19, and the risk of neurologic disorders following the COVID-19 infection.

Footnotes

Authors' Contribution: It was not declared by the authors.

Conflict of Interests: The first author is the Editor-in-Chief of the journal and the second author is his daughter.

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