

A Prospective Study of Neurologic Disorders in Hospitalized Patients With COVID-19 in New York City

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Study Question

What are the prevalence rates and associated mortality rates for well-defined neurologic diagnoses in patients with coronavirus disease 2019 (COVID-19)?

What Is Known and What This Paper Adds

Clinicians have noted the occurrence of diverse neurologic events in patients with COVID-19, but a paucity of prospective data has hindered efforts at ascertaining diagnosis-specific prevalence rates. This investigation's results show that neurologic events occur in more than a tenth of patients with COVID-19 and are associated with elevated risks of mortality.

Methods

For this prospective longitudinal observational study, the investigators followed 4,491 adults with COVID-19 admitted to 4 hospitals that are part of the same academic center located in and around New York City between March 10 and May 20 of 2020. The investigators noted neurologist-diagnosed cases of neurologic events, and they used a Cox proportional hazards model to compare patients with and without neurologic diagnoses in terms of in-hospital mortality risks and discharge outcomes.

Results and Study Limitations

Overall, 606 patients (13.5%) developed a new neurologic disorder during their hospitalizations, with the median interval from onset of COVID-19 to the onset of a neurologic disorder being 2 days (interquartile range, 0–13 days). The most common diagnoses were toxic/metabolic

Table Comparisons of Outcomes in Patients With and Without Neurologic Diagnoses

Group	Percentage dying in the hospital	Percentage discharge to home
With neurologic diagnoses	35%	34%
Without neurologic diagnoses	19%	67%

encephalopathy (6.8%), seizure (1.6%), stroke (1.9%), and hypoxic/ischemic injury (1.4%). In contrast, no patients had meningitis/encephalitis or myelopathy/myelitis attributable to severe acute respiratory syndrome coronavirus 2. Relative to patients without neurologic diagnoses, those with neurologic diagnoses were older and more likely to be male, white, hypertensive, and diabetic. They were at higher risk of in-hospital mortality (hazard ratio [HR], 1.38; 95% confidence interval [CI], 1.17–1.62) and had lower likelihoods of discharge to their homes (HR, 0.72; 95% CI, 0.63–0.85). The present study's limitations include possible failures to detect neurologic events due to sedation or paralysis and potentially limited generalizability to patients who do not visit a hospital.

Study Funding and Competing Interests

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A draft of the short-form article was written by M. Dalefield, a writer with Editage, a division of Cactus Communications. The corresponding author(s) of the full-length article and the journal editors edited and approved the final version.

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