

New onset neurologic events in people with COVID-19 in 3 regions in China

Weixi Xiong, MD, Jie Mu, MD, Jian Guo, MD, et al.

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Correspondence

Dr. Zhou
zhoudong66@yahoo.de

Study question

What are the new-onset neurologic impairments associated with COVID-19?

What is known and what this paper adds

Several single-center reports and case series have described neurologic disorders in patients with COVID-19. This multi-center investigation's results show that impaired consciousness and cerebrovascular events are particular risks for these patients.

Methods

For this retrospective cross-sectional study, the investigators reviewed the medical records of 917 patients with COVID-19 (55% male; mean age, 48.7 ± 17.1 years; range, 3 months to 91 years) who received treatment in early 2020 at 56 hospitals in the cities of Wuhan ($n = 286$) and Chongqing ($n = 176$) and the province of Sichuan ($n = 455$). Admissions occurred between January 18 and March 3 in Sichuan and Chongqing and between January 18 and March 20 in Wuhan. Real-time PCR confirmed the presence of the relevant virus in swab samples, and clinicians categorized cases as mild, moderate, or severe/critical. Neurologists reviewed the available notes concerning new-onset specific neurologic events (defined here as events requiring neurologic investigations or interventions). The primary outcomes were critical events, which included disorders of consciousness, cerebrovascular events, CNS infections, seizures, and status epilepticus. The investigators used multivariable logistic regression to identify variables associated with critical neurologic events.

Table Observed disturbances of consciousness

Type of consciousness disturbance	No. of patients affected
Delirium	7
Drowsiness/stupor/coma	14
Syncope	3
Coma after traumatic brain injury	1

Results and study limitations

The prevalence of new-onset critical neurologic events was 3.5% ($n = 32$) for all patients and 9.4% ($n = 30$) for the 319 patients with severe/critical COVID-19. The observed new-onset critical neurologic disorders were impairments of consciousness ($n = 25$) and stroke ($n = 10$). Being older than 60 years was a risk factor for critical events (odds ratio, 6.75; 95% confidence interval, 3.01–15.14, $p = 0.000$). Seven patients (1%) experienced noncritical neurologic events, including muscle cramps, unexplained headaches, occipital neuralgia, tics, and tremors. SARS-COV-2 identification was negative in the CSF of all 3 cases tested. The present study's limitations include its retrospective nature and the lack of brain MRI and EEG data.

Study funding and competing interests

This study was funded by the National Natural Science Foundation of China and the West China Hospital of Sichuan University. The authors report no competing interests. Go to Neurology.org/N for full disclosures.

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