

# Stroke and altered mental state increase risk of death for COVID-19 patients

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People hospitalized with COVID-19 and neurological problems including stroke and confusion, have a higher risk of dying than other COVID-19 patients, according to a study published online today by researchers at Montefiore Health System and Albert Einstein College of Medicine in the journal *Neurology*, the medical journal of the American

Academy of Neurology. These findings have the potential to identify and focus treatment efforts on individuals most at risk and could decrease COVID-19 deaths.

The study looked at data from 4,711 COVID-19 patients who were admitted to Montefiore during the six-week period between March 1, 2020 and April 16, 2020. Of those patients, 581 (12%) had [neurological problems](#) serious enough to warrant brain imaging. These individuals were compared with 1,743 non-neurological COVID-19 patients of similar age and disease severity who were admitted during the same period.

"This study is the first to show that the presence of neurological symptoms, particularly [stroke](#) and confused or altered thinking, may indicate a more serious course of illness, even when pulmonary problems aren't severe," said David Altschul, M.D., chief of the division of neurovascular surgery at Einstein and Montefiore and associate professor in the Leo M. Davidoff Department of Neurological Surgery and of radiology at Einstein. "Hospitals can use this knowledge to prioritize treatment and, hopefully, save more lives during this pandemic."

Among people who underwent brain imaging, 55 were diagnosed with stroke and 258 people exhibited confusion or altered thinking ability. Individuals with stroke were twice as likely to die (49% mortality) compared with their matched controls (24% mortality)—a statistically significant difference. People with confusion had a 40% mortality rate compared with 33% for their matched controls—also statistically significant.

More than half the [stroke patients](#) in the study did not have hypertension or other underlying risk factors for stroke. "This highly unusual finding agrees with other studies of people with COVID-19 in suggesting that infection with the novel coronavirus is itself a risk factor for stroke,"

said Dr. Altschul, who is also surgical director of the Montefiore Comprehensive Center for Stroke Care, and the study co- author, along with Emad Eskandar, M.D., M.B.A., chair of neurological surgery at Einstein and Montefiore, professor in the Leo M. Davidoff Department of Neurological Surgery, the department of psychiatry and behavioral sciences, in the Dominick P. Purpura Department of Neuroscience at Einstein. Dr. Eskandar also holds the Jeffrey P. Bergstein Chair and the David B. Keidan Chair in Neurological Surgery.

The paper is titled "Neurologic Syndromes Predict Higher In-Hospital Mortality in COVID-19."

Provided by Albert Einstein College of Medicine

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