

Cognitive disorders linked to severe COVID-19 risk

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Dementia and other cognitive disorders now appear to be risk factors for developing severe COVID-19, according to research from the University of Georgia. The findings highlight the need for special care for populations with these preexisting conditions during the pandemic.

In a blind study, the researchers analyzed data from nearly 1,000 diseases and two [specific genes](#) to compare the health profiles of COVID-19 patients with those testing negative, looking for commonalities in the COVID-19 patients.

The study, published online in the journal *Brain, Behavior and Immunity*, relied on data from UK Biobank, a long-term study of more than 500,000 participants investigating the respective contributions of genetic predisposition and environmental exposure to the development of disease.

Beginning in March, the UK Biobank started to report the COVID-19 status of its participants. The team in the Franklin College of Arts and Sciences department of genetics, led by assistant professor Kaixiong Ye and his postdoc, Jingqi Zhou, promptly connected the COVID-19 status to the electronic health data.

"We took a hypothesis-free approach and the most statistically significant ones are the [cognitive disorders](#) and Type 2 diabetes," said Ye, the senior author on the study. "Right now, we don't know the mechanisms behind these associations, we only know these are more common in COVID-19 patients."

Analyzing the [genetic factors](#) that make some individuals at higher risk for severe COVID-19, the team focused on two genes: ACE2 and TMPRSS2, known to be critical for the virus to enter into human cells.

"In the TMPRSS2 gene we found that a specific genetic variation is more common in the COVID-19 patient," he said, adding that while the discovery was novel at the time, the team knows more data now exists about host genetic factors than even three months ago.

The research team also found that variations in genes related to SARS-

CoV-2 infection may be associated with severe COVID-19 that requires hospitalization.

"And we are starting to understand how those genetic variations are making a difference," he said, noting the extraordinary pace of research worldwide during the pandemic as scientists work on SARS CoV 2. Since they began in spring 2020, Ye's group has been able to follow up on its own earlier work and communicate with peers around the world to contribute to the overall body of knowledge about the disease.

"Working on one disease, the whole field is converging together, around the world, at the same time. It really showcases the power of science," Ye said. "What my group is doing is really just [data analysis](#), large-scale data mining, but from vaccine development to studies in patients, scientists are attacking the [disease](#) from different aspects, and that's moving us forward very quickly in combating COVID-19."

More information: Jingqi Zhou et al, Cognitive disorders associated with hospitalization of COVID-19: Results from an observational cohort study, *Brain, Behavior, and Immunity* (2020). [DOI: 10.1016/j.bbi.2020.10.019](#)

Provided by University of Georgia

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