

GREY MATTER LOSS SEEN AFTER COVID

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Brain scans were compared to study changes over time. File photo

The loss of smell and taste, which is among the most common symptoms associated with coronavirus infection, is writ large in the brain, says a study that scanned brain images from a group of volunteers to compare changes before and after COVID-19.

The study, which is yet to be peer-reviewed, was able to paint a picture of a distinct loss of grey matter, in regions of the brain associated with smell and taste in those who had tested positive for the coronavirus compared to those who hadn't.

"This [the grey matter loss] might represent a more deleterious impact of COVID-19, or be due to risk factors (as hospitalised patients were older, had higher Body Mass Index) and blood pressure, and higher risk of diabetes), or an interaction of both. The loss of grey matter in memory-related regions of the brain may in turn increase the risk of these patients of developing dementia in the longer term," say the authors, who include scientists at the University of Oxford, the Imperial College London, and the National Institutes of Health, U.S.

The study compared brain imaging scans sourced as part of the U.K. Biobank initiative, that prior to the pandemic had collected a large set of brain-scan images from over 40,000 volunteers over 45. From these, 394, who had tested positive for the virus and 388 who had not (and used as comparator controls), and who had appeared for follow-up brain imaging, were studied to tease out how parts of their brains had changed.

Apoorva Bhandari, cognitive neuroscientist, Brown University, United States, said that the findings showed a "significant though subtle grey matter loss" linked to a positive COVID-19 test or diagnosis. "It's harder to say that it was due to COVID and in particular due to the novel coronavirus attacking the neurons. It may be due to secondary effects of the loss of olfactory functioning, which itself is likely due to the virus impacting other non-neural support cells in olfactory epithelium. When you have a profound effect on a sensory system's processing, you can see its effects in subsequent processing regions (including in the grey matter volume) even in normal subjects, which is temporary and reversible," Mr. Bhandari, who wasn't connected to the study, told *The Hindu*.

Going ahead, data from this set that could establish if over time the grey matter loss reversed, stayed stable or further deteriorated could provide "very strong clues" to not only the mechanism (causing the loss) but the potential significance of these findings, he added.

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