



People who had Long COVID Six Months after Infection no Longer had it at Nine Months

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Letter to the Editor

A report by Thaweethai et al. [1] claims that "people who had long COVID six months after infection no longer had it at nine months".

In contrast to this expressed but controversial opinion, COVID-19 symptoms may contribute to persistent memory impairment, "brain fog", chronic fatigue, and other neurologic symptoms. Resulting nervous system damage can therefore severely impact a COVID-19 patient's quality of life, productivity, and present ongoing challenges to our health care systems.

A UK Biobank study [2] involved 401 participants receiving conventional Brain MRI twice, both prior to and following COVID-19 infection, who were then compared to a parallel group of 384 controls. There were volume reductions in COVID-19 patients' parahippocampal gyrus, orbitofrontal cortex, and whole brain size, which was attributed to their infection.

A further study [3] from George Washington University described 24 consecutive long term COVID-19 infected patients, age 60 years or less, with mild respiratory symptoms, who underwent voxel-based morphometry imaging, which measures volumes of key brain structures important for memory function. Findings were compared to a normative database drawn from age and sex matched controls. The results documented a statistically significant depletion of cortical grey matter volume as the source for COVID-19 patients' cognitive impairment, "brain fog", and chronic fatigue. It is unlikely that these long-term COVID-19 infected patients will recover their brain volumes anytime soon.

NIH recently committed \$1.2 billion to fund 4 therapeutic trials in long term COVID-19 patients with several more to come. This effort is misguided because of the failure to distinguish the cause (COVID-19 infection) from the result (brain damage) which is not likely to be responsive to routine therapeutic interventions. What is needed is support for additional studies to further clarify the neuropathology responsible for the neurological symptomatology in order to determine whether therapies have any potential to be effect.

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