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EDITORIAL

COVID-19 and Brain Fog

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Brain fog, a term used to describe slow or sluggish thinking, can occur under a variety of conditions, including sleep deprivation, illness, or side effects from drowsy-causing medications. Brain fog can also occur as a result of chemotherapy or a concussion.

According to recent research, COVID-19 infection can have serious neurological consequences in a small percentage of people. However, many more people suffer from fatigue, low motivation, disturbed mood, poor sleep, and cognitive symptoms in the months following an acute illness, which is colloquially known as "brain fog." The mechanisms underlying these cognitive deficits are still unknown. Although a direct effect of virus persistence in the brain cannot be ruled out, evidence from post-mortem studies indicates that there is very little virus presence in the brains of COVID-19 patients [1]. Rather, the virus may have indirect effects on cognitive function via a variety of mechanisms, including immunological and microvascular changes [2].

One study of COVID-19 survivors found that the most severely cognitively impaired patients had cognitive impairment accompanied by hypometabolism in the frontoparietal regions [3]. These brain regions are linked to both sustained attention [4] and episodic memory [5, 6]. Hosp *et al*.[3] follow-up study showed slow but noticeable improvement after 6 months [7]. This is consistent with the findings in mildly affected individuals: both vigilance and episodic memory deficits gradually resolved over time. After 6 months, episodic memory levels returned to normal. Those who had COVID-19 more than 9 months ago did not show the vigilance decrease.

More research is needed to confirm whether COVID-19 infections cause widespread attention and memory problems, regardless of age group or severity of illness, and to consider other factors that may affect cognition. A better understanding of why some people experience noticeable problems with attention and memory after receiving COVID while others do not may eventually will help guide care.

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