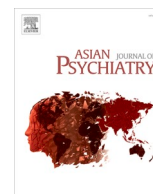




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Letter to the editor

Comments on “Long term neuropsychiatric consequences in COVID-19 survivors: Cognitive impairment and inflammatory underpinnings fifteen months after discharge”



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Long-COVID

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Dear Editor,

We read carefully the recently published article titled “Long Term Neuropsychiatric Consequences In COVID-19 Survivors: Cognitive Impairment and Inflammatory underpinnings Fifteen Months After Discharge” (He et al., 2022), with great interest. The authors have discussed cognitive impairment as an important long-term sequel of COVID-19 as long as 15 months after discharge following COVID-19 infection. This study has also revealed that the patients infected with COVID-19 had higher level of inflammatory markers like interferon-gamma, tumor necrosis factor – alpha, interleukin – 6 and interleukin – 8 (He et al., 2022). This is a cross-sectional study, that measured the cognitive function of 66 COVID-19 survivors, fifteen months following their discharge after being hospitalized for COVID-19. These patients were never evaluated for their cognitive function, prior to COVID-19 infection. Hence, it is impossible to know, whether these patients ever had cognitive deficit prior to COVID-19 infection. Also, they were not evaluated for any cognitive deficit following their discharge or anytime within these 15 months. Thus, it can't be ascertained whether there is improvement or decline in cognitive function at the time of this study, with respect to their recovery from COVID-19 (discharge from hospital). It is also difficult to anticipate that whether the cognitive deficits elicited in these patients after fifteen months of discharge, were residual stable deficits or they are expected to improve eventually. A prospective study measuring the cognitive functioning periodically after their discharge might have given insight into any trend in cognitive functioning among these survivors.

It is well-known that during this COVID-19 pandemic, various strains of SARS-CoV2 infected majority individuals during different waves of COVID-19, due to serial mutation in the viral genome (CDC, 2022; El-Shabasy et al., 2022). All these strains reportedly have different potential of infectivity and disease severity including the potential to cause cytokine storms (CDC, 2022; El-Shabasy et al., 2022). In the current study, the patients included belonged to a particular time period, during which most of the patients were commonly infected with a particular strain of SARS-CoV2. The neurocognitive effect of all the strains of SARS-CoV2 can't be expected to be same. There is a need to study the neurocognitive effects of different strains of SARS-CoV2, so that strain

specific severity in cognitive deficit may be ascertained.

Many people were infected more than once during different waves of COVID-19. Whether repeated infection with COVID-19 will have more cognitive adverse outcomes, is not yet well understood. This study, will not be able to answer this question as history of any repeat COVID-19 infection was not evaluated in these 66 patients (He et al., 2022).

It is well-known that COVID-19 infection causes immunologic reactions, which may be of milder severity to severe form like cytokine storm. Also, the immunological reaction has possible implications in development of subsequent psychiatric illnesses including neurodevelopmental disorders (Chatterjee and Kar, 2022; Kar et al., 2020). The authors have rightly chosen to evaluate the association of immunological markers with reference to neuropsychiatric sequel in form of cognitive deficits, in this study (He et al., 2022). However, vaccines against COVID-19, also trigger immune response in individuals, which may result in increase in levels of certain cytokines (Mopuru and Menon, 2023). The vaccination status of participants (patients and healthy controls) at the time of conducting the study were not considered in analysis. This could be an important confounder for the measured cytokines in this study (He et al., 2022).

This study analyzed the patients, who were hospitalized for COVID-19 infection, fifteen months back. Hospitalized patients often have severe COVID-19 and higher risk of hypoxia. The details of hypoxia, need of ventilatory support, steroid administration and history of cytokine storm during hospitalization were not enquired for these patients, about which the authors had also acknowledged in the limitation section of the article (He et al., 2022). These factors may be strong independent predictors of long-term cognitive outcomes.

Hence, it is very important to interpret these findings cautiously. It is important to understand that long-COVID and cognitive sequelae may occur among the COVID-19 survivors; however, whether all infected persons (irrespective of the strain of SARS CoV-2 that caused the infection) are going to develop it, or there is some influence of the strain responsible for infection, the course of these cognitive deficits with time is still illusive, and require more intense research in the days to come.

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Conflict of interest

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