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Impending cognitive and functional decline in COVID-19 survivors. Comment on *Br J Anaesth* 2021; 126: 44–7

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Keywords: COVID-19; functional impairment; neurocognitive decline; neuroinflammation; neurotropic associations; viral pandemic

Editor—Baker and colleagues[1] predict a 'third wave' of neurocognitive decline in coronavirus disease 2019 (COVID-19) survivors.[1] Although their illustration of the wheel of factors surrounding post-COVID-19 cognitive and functional impairment is compelling, specific contextual literature, additional neurotropic associations, previous experiences with viral illnesses, and future perspective in this area demand further elucidation to complete the picture.

Appropriate to their discussion of the multisystemic role of COVID-19-associated inflammation in neurocognitive impairment, the findings of Zhou and colleagues[2] deserve mention. They studied the relationship between the inflammatory profile and post-COVID recovery cognitive function by online neuropsychological evaluation.[2] C-reactive protein levels positively correlated with the reaction time of the first and second parts of the continuous performance neuropsychological test. Although the clinical significance of these findings premised on multiple neuropsychological tests in a rather small cohort of COVID-19 survivors is open to debate, the possible links between COVID-19-related inflammation[2–4] and long-term functional impairment cannot be overlooked.

Alongside a multifaceted 'post-intensive care syndrome' aetiology for COVID-19-related neurocognitive decline detailed by Baker and colleagues,[1] there are additional

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neurotropic associations to consider.[1,5,6] These range from peripheral demyelinating illnesses, such as Guillain–Barré syndrome described in COVID-19, to abnormal magnetic resonance brain imaging in as high as 44% of severe acute respiratory syndrome coronavirus 2-infected patients with neurological symptoms.[5–7] The magnitude of disease burden is compounded by factors, such as lack of a control group and the radiological studies being confounded by indication.[7,8]

Moreover, drawing upon previous experiences with human immunodeficiency and herpes viruses, the anticipation of Baker and colleagues[1] of a 'third wave' of COVID-19-related neurocognitive impairment is pertinent.[5]

Prospective studies, such as 'Neurocognitive Impairment in Patients with COVID-19' (NCoV; NCT04359914), entailing a combined neuro-axonal biomarker estimation and 3 month neurocognitive performance in 80 participants are an ongoing endeavour in this area. Meanwhile, the proposal of the Environmental Neurology Specialty Group of the World Federation of Neurology to stage international registries of the neurological manifestations of COVID-19 is promising.[9]

The biological plausibility of subtle-to-severe COVID-19-associated neurological insults should be closely backed by a conceptualisation of systematic preventive–diagnostic–management multidisciplinary approach, as these subtle issues can develop into perturbing sequelae in COVID-19 'long haulers', which would pose a peculiarly challenging post-pandemic situation.

Declarations of interest

The author declares that they have no conflicts of interest.

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Does opioid substitution treatment have a protective effect on the clinical manifestations of COVID-19? Comment on *Br J Anaesth* 2020; 125: e382–3

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Editor—A recent letter acknowledged the perceived clinical vulnerability to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection of groups chronically treated with or using opioids, but noted there was little published clinical data to support this prediction.[1] Other international reports have described an unexpectedly low incidence of coronavirus disease 2019 (COVID-19) in people

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