Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to the Editor

The continuum of SARS-CoV-2's neurotropism and the potential for immune-mediated neuronal injury

To the Editor

The recent study by Vollono and colleagues [1] provides a concise report on a SARS-CoV-2 associated focal status epilepticus case. The authors hypothesize that a neurotropic mechanism may be involved in the development of the clinical presentation, albeit without PCR -proven neuroinvasion.

The report by the authors is of great importance towards defining the spectrum of "NeuroCOVID-19", however there are two important parameters that arise and are currently unadressed in the study.

Hypogeusia and hyposmia is a common constellation of symptoms either precedent to COVID-19's respiratory features, or self-limiting in their own right [2]. Both symptoms reflect SARS-CoV-2's neurotropism [3], albeit the actual disease course as well as the actual phenotype may be defined by host-specific factors, such as the interaction of furin cleavage sitewith host proteases [4].

Considering the lack of concrete evidence of pathologically defined neurotropism, both hypogeusia and hyposmia represent indirect evidence of neuroinvasion that can be derived by patient history. Currently, the authors do not provide information on either; their addition would help understand whether there is a continuum in SARS-CoV-2's putative neuroinvasion.

An alternative mechanism to said neuroinvasion, previously described in the literature is immune-mediated parenchymal injury, as the presumed effect of cytotoxic cytokines [5]. The case presented by Poyiadji et al., despite providing an example of fulminant CNS disease, illustrates the mechanism for autoimmune neuronal insult in the absence of RT-PCR confirmed SARS-CoV-2 detection in the CSF.

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Consent for publication

Not applicable / Single Author

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Declaration of Competing Interest

None declared.

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To dr Maria Chatzi MD, holding the line in an ER room, amidst an unprecedented crisis.

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