

SARS-CoV-2 Can Only be Held Responsible for Facial Palsy after all Differential Causes have been Ruled Out

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LETTER TO THE EDITOR

We read with interest the article by Yamasaki, *et al.*, on a 17 year-old male who developed right facial palsy during SARS-CoV-2 infection [Yamasaki, K. *et al.*, 2023]. Due to this infection he was diagnosed with Bell's palsy and was treated with valaciclovir (1000 mg/day) and prednisolone (40 mg/day). after other viral infections were ruled out by a viral panel in the serum [Yamasaki, K. *et al.*, 2023]. He fully recovered within six weeks [Yamasaki, K. *et al.*, 2023]. The study is excellent but has limitations that should be discussed.

The first limitation of the study is that no studies on cerebrospinal fluid (CSF) were conducted. CSF studies are important not only to determine whether facial nerve palsy was due to brainstem encephalitis or radiculitis of a single cranial nerve (mononeuritis cranialis), but also to involvement distal to the intracranial portion of the facial nerve. Numerous parameters can be determined in the CSF in order to confirm or rule out whether SARS-CoV-2 was actually responsible for the nerve palsy. These include PCR for SARS-CoV-2, CSF-IgG, cytokines, chemokines, glial factors, 14-3-3, tau, proteins of serpin pathways, complement factors, glycoprotein-alpha-2, glycoprotein-alpha-1, linear RNAs, circRNAs, TCF4, etc. [Jarius, S. *et al.*, 2022].

A second limitation is that the index patient has not undergone facial nerve conduction studies or transcranial magnetic stimulation (TCM) of facial cortical nerve representation. Nerve conduction studies may show axonal loss through reduced amplitude of compound muscle action potential. The TCM could result in a prolongation of the M-latency.

We disagree that the facial nerve palsy in the index patient can be described as "Bell's palsy" The term

"Bell's palsy is reserved for facial nerve palsy of unknown etiology. In the index case, however, the facial palsy was attributed to SARS-CoV-2. Therefore, it is no longer idiopathic.

We disagree that right facial nerve palsy was due to SARS-CoV-2. The fact that no PCR for SARS-CoV-2 documented it in CSF and that the typical immunological reaction to SARS-CoV-2 in CSF was not documented, speak against a causal relationship.

Overall, the interesting study has limitations that put the results and their interpretation into perspective. Addressing these issues would strengthen the conclusions and could improve the status of the report. The term Bell's palsy is reserved for facial palsy of unknown etiology. Before facial palsy can be attributed to a SARS-CoV-2 infection, various different causes must be thoroughly ruled out.

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The authors confirm that the approval of an institutional review board or patient consent was not required for this work. We confirm that we have read the Journal's position on issues involved in ethical publication and affirm that this work is consistent with those guidelines. This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

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