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Essential tremor worsening after SARS-CoV-2 infection: a second case report

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Introduction: Worsening of pre-existing neurological symptoms and/or the development of new neurological diseases are both possible consequences of SARS-CoV-2 infection. In essential tremor (ET) only one case report documented so far ET worsening due to SARS-CoV-2 infection [1].

Aim: To describe clinical and kinematic features of tremor, as well as non-motor symptoms, in a case of ET after SARS-CoV-2 infection.

Methods: As a routine assessment, we collected clinical and kinematic data of tremor, as well as cognitive and psychiatric data by means of clinical scales in a 63-year-old patient with ET (T0) [2]. One month after the assessment, the patient suffered from a SARS-CoV-2 infection. Two months after infection (T1) the patient was evaluated as in T0. Moreover, at T1 the patient underwent blood laboratory examinations and a cerebral MRI scan.

Results: Compared to T0, at T1 we found an increase in the Fahn-Tolosa-Marin Tremor Rating Scale score (T0 vs T1: 27 vs. 41). As compared to T0, kinematic analysis of tremor at T1 revealed an increase in postural tremor amplitude of upper limbs (average percent variation + 45%) and head (average percent variation +284%). No variations in postural tremor frequency nor in rest and kinetic tremor features were observed. Cognitive and psychiatric symptoms did not change. Finally, blood laboratory exams and cerebral MRI did not show significant abnormalities.

Conclusion: We report a second case of tremor worsening in a patient with ET after SARS-CoV-2 infection. This novel observation suggests that ET worsening after SARS-CoV-2 infection may be more frequent than reported so far. Tremor worsening may be due to neuroinflammation processes induced by the virus and the involvement of brain areas with a key role in ET pathophysiology, i.e., the cerebello-thalamic network [3-4]. A longer follow-up and the dosage of neuroinflammation biomarkers may be useful to better define the causal role of SARS-CoV-2 infection in ET worsening.

References:

[1] Passaretti M, De Biase A, Paparella G, Angelini L, Cannavacciuolo A, Colella D, Berardelli A, Bologna M. Worsening of Essential Tremor After SARS-CoV-2 Infection. Cerebellum. 2023 Feb;22(1):155-158. doi: 10.1007/s12311-022-01366-8. Epub 2022 Jan 6. PMID: 34989982; PMCID: PMC8732967.
[2] Angelini L, Paparella G, De Biase A, Maraone A, Panfili M, Berardelli I, Cannavacciuolo A, Di Vita A, Margiotta R, Fabbrini G, Berardelli A, Bologna M. Longitudinal study of clinical and neurophysiological features in essential tremor. Eur J Neurol. 2023 Mar;30(3):631-640. doi: 10.1111/ene.15650. Epub 2022 Dec 11. PMID: 36437695.
[3] Vanderheiden A, Klein RS. Neuroinflammation and COVID-19. Curr Opin Neurobiol. 2022 Oct;76:102608. doi: 10.1016/j.conb.2022.102608. Epub 2022 Jun 29. PMID: 35863101; PMCID: PMC9239981.
[4] Pietracupa S, Bologna M, Tommasin S, Berardelli A, Pantano P. The Contribution of Neuroimaging to the Understanding of Essential Tremor Pathophysiology: a Systematic Review. Cerebellum. 2022 Dec;21(6):1029-1051. doi: 10.1007/s12311-021-01335-7. Epub 2021 Oct 16. PMID: 34657271.