

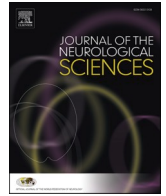


Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

## Journal of the Neurological Sciences

journal homepage: [www.elsevier.com/locate/jns](http://www.elsevier.com/locate/jns)

Letter to the Editor


**Reply to: Letter to the Editor – N. Mitchell; Covid-19: Involvement of the nervous system. Identifying neurological predictors defining the course of the disease**

We read with great interest the comments in the letter by N. Mitchell regarding the prediction of neurological symptoms of Covid-19 by using the age of the study participants. Indeed, we are grateful for the valuable insights into a still scantily explored aspect of the disease.

Our study [1] was intended to analyze the spectrum of neurological symptoms and their possible predictive value for the course of the disease, and we were able to document the duration but not the severity of neurological symptoms.

Statistical data published by the Austrian Federal Ministry of the Interior [2] shows that in the period of our study, March 13th – April 14th 2020, the mean age (56,7 years) of SARS-CoV-2 positive patients in Austria was much higher compared to the time before and after our study. For example, the mean age of Sars-CoV-2 patients in calendar week 34 was 31.5, and in week 42 40.6 years. These data may provide explanation of the older age of participants in our study.

The more frequent occurrence of anosmia in younger patients described by Lechien et al. [3] may also be in line with our results showing a negative correlation with age ( $p = .096$ ) in out-patients. Further trends of increased frequency in younger patients were observed for the symptoms myalgia ( $p = .052$ ) and headache ( $p = .055$ ), although not significant.

Due to the increasing prevalence of younger patients and the changing pattern of symptoms and course of the disease due to the emerging variants, further studies and development of databases will be required in order to enable an effective analysis regarding early predictors of the course of Covid-19 disease.

## References

- [1] U. Zifko, T. Schmiedlechner, J. Saelens, K. Zifko, M. Wagner, O. Assadian, W. Grisold, H. Stingl, Covid-19: involvement of the nervous system. Identifying neurological predictors defining the course of the disease, *J Neurol Sci* 425 (2021) 117438, <https://doi.org/10.1016/j.jns.2021.117438>.
- [2] <https://data.gv.at/covid-19>. Österreichisches Covid-19 Open Data Informationsportal.
- [3] J.R. Lechien, C.M. Chiesa-Estomba, D.R. De Siati, M. Horoi, S.D. Le Bon, A. Rodriguez, D. Dequanter, S. Blečić, F. El Afia, L. Distinfini, Y. Checkkoury-Idrissi, S. Hans, I.L. Delgado, C. Calvo-Henriquez, P. Lavigne, C. Falanga, M.R. Barillari, G. Cammaroto, M. Khalife, P. Leich, C. Souchay, C. Rossi, F. Journe, J. Hsieh, M. Edjlali, R. Carlier, L. Ris, A. Lovato, C. De Filippis, F. Coppee, N. Fakhry, T. Ayad, S. Saussez, Olfactory and gustatory dysfunctions as a clinical presentation of mild-to-moderate forms of the coronavirus disease (Covid-19): a multicenter European study, *Eur Arch Otorhinolaryngol* 277 (8) (2020) 2251–2261, <https://doi.org/10.1007/s00405-020-05965-1>.

Udo Zifko<sup>a,\*</sup>, Theresa Schmiedlechner<sup>a</sup>, Johan Saelens<sup>b</sup>, Katharina Zifko<sup>b</sup>, Michael Wagner<sup>c</sup>, Ojan Assadian<sup>d</sup>, Wolfgang Grisold<sup>e</sup>, Harald Stingl<sup>c</sup>

<sup>a</sup> *Neurologische Abteilung, Evangelisches Krankenhaus, Hans-Sachs-Gasse 10-12, 1180 Wien, Austria*

<sup>b</sup> *Medizinische Universität Wien, Spitalgasse 23, 1090 Wien, Austria*

<sup>c</sup> *Interne Abteilung, Landesklinikum Melk, Krankenhausstraße 11, 3390 Melk, Austria*

<sup>d</sup> *Ärztliche Direktion, Landesklinikum Wiener Neustadt, Corvinusring 3-5, 2700 Wiener Neustadt, Austria*

<sup>e</sup> *Ludwig-Boltzmann-Institute for Experimental and Clinical Traumatology, Donaueschingenstraße 13, A-1200 Wien, Austria*

\* Corresponding author.

E-mail address: [udo@zifko.at](mailto:udo@zifko.at) (U. Zifko).

<https://doi.org/10.1016/j.jns.2021.117577>

Received 9 July 2021; Accepted 12 July 2021

Available online 21 July 2021

0022-510X/© 2021 Elsevier B.V. All rights reserved.