

CORRESPONDENCE

Reply to correspondence to 'Differentiation of COVID-19 signs and symptoms from allergic rhinitis and common cold: An ARIA-EAACI-GA2LEN consensus'

In their correspondence,¹ the authors correctly point out that symptoms of COVID-19 are changing constantly over time due to various influences, in particular *variants of concern* (VOC), environmental factors and vaccinations against the SARS-CoV-2. These evolutions happen globally and rapidly, and peer-reviewed manuscripts can often not compete against newer app-based reports of changing symptoms and VOC. The data collection for our paper took place at the end of 2020 when no vaccinations were available aside from clinical trials.² The study was intended to identify symptoms that might separate COVID-19 from allergic rhinitis (AR) and common cold (CC), which are still seen as major concerns.²

We would like to emphasise the importance of regional differences as well, since in the first reports of COVID-19, smell and taste dysfunctions were merely absent from China,³ whereas they appeared to be of great importance in European countries.^{4,5} However, symptom reports from ZOE and REACT are over-representing the United Kingdom, compared with other regions, and should be considered with a careful analysis of its origin and transferability to other situations. The ARIA-EAACI-GA²LEN consensus did include different regions across the globe.

The authors of the correspondence¹ are correct to point the possible importance of vaccination. However, vaccination may not be a major factor to consider since, as shown by the authors in their table, vaccination did not considerably change the symptoms of ZOE in nonvaccinated and vaccinated people aside from one item. 'ZOE 2 vaccinations' might comprise a time-dependent bias as new VOC could have emerged in-between vaccinations.

It is of great interest to read Table 1 corresp. provided by the authors of the letter though it appears to be somewhat misleading.¹ (i) In our paper, specialists were asked to grade symptom levels and analyses that assessed the level of debate or agreement to those symptom levels in question. In our paper, we did not consider several items presented in the table concerning respiratory symptoms (e.g. headache, chills and fever), but we highlighted those clearly established when the study was done in table 3. Headache was not yet considered a major factor since most studies were carried out on severe Covid-19.² (ii) We do not understand the list of items presented in the table since it is not in line with what we

published. We proposed 'no symptom', 'very rare symptoms', 'not uncommon symptoms' and 'possible symptoms' (Table 1_{consensus}), and then, we proposed a severity assessment. (iii) Moreover, there is a major issue in the table since in September 2021, several VOCs were found, yet not considered by the authors. In a new study using the same methods, we found significant differences in symptoms with wild-type, delta and omicron variants (paper in preparation). (iv) The REACT paper referred to the table deals with long COVID.⁶

Overall, the correspondence points out important issues and limitations, but it might have been more precise concerning variants of interest in a rapidly changing field and geographical locations. We are grateful for these remarks that have to be translated into the improved presentation of data and an ongoing debate about symptoms that has to take VOC into consideration.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

JB and JH drafted the manuscript, which all authors then edited and revised critically.

Jan Hagemann¹

Torsten Zuberbier^{2,3} 

Giorgio Walter Canonica^{4,5}

Hubert Blain⁶

Jean Bousquet^{2,3,6} 

Ludger Klimek^{1,7} 

¹Department of Otolaryngology, Head and Neck Surgery, Universitätsmedizin Mainz, Mainz, Germany

²Institute of Allergology, Charité – Universitätsmedizin Berlin, Corporate Member of Freie Universität Berlin and Humboldt-Universität zu Berlin, Berlin, Germany

³Allergology and Immunology, Fraunhofer Institute for Translational Medicine and Pharmacology ITMP, Berlin, Germany

- ⁴Department of Biomedical Sciences, Humanitas University,
Pieve Emanuele, Milan, Italy
- ⁵IRCCS Humanitas Research Hospital, Rozzano, Milan, Italy
- ⁶University Hospital Montpellier, Montpellier, France
- ⁷Center for Rhinology and Allergology, Wiesbaden, Germany

Correspondence

Jan Hagemann, Universitätsmedizin Mainz, Hals-Nasen-
Ohrenklinik und Poliklinik, Langenbeckstr. 1, 55131 Mainz,
Germany.
Email: jan.hagemann@unimedizin-mainz.de

ORCID

Torsten Zuberbier  <https://orcid.org/0000-0002-1466-8875>
Jean Bousquet  <https://orcid.org/0000-0002-4061-4766>
Ludger Klimek  <https://orcid.org/0000-0002-2455-0192>

REFERENCES

1. Smith P, Lesslar O, Price D. Correspondence to Differentiation of COVID-19 signs and symptoms from allergic rhinitis and common cold- An ARIA-EAACI-GA(2)LENconsensus. *Allergy*. 2022;77:2571-2573.
2. Hagemann J, Onorato GL, Jutel M, et al. Differentiation of COVID-19 signs and symptoms from allergic rhinitis and common cold – an ARIA-EAACI-GA(2) LENconsensus. *Allergy*. 2021;76:2354-2366.
3. Guan WJ, Ni ZY, Hu Y, et al. Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med*. 2020;382:1708-1720.
4. Izquierdo-Dominguez A, Rojas-Lechuga MJ, Mulla J, Alobid I. Olfactory dysfunction in the COVID-19 outbreak. *J Invest Allergol Clin Immunol*. 2020;30(5):317-326.
5. Malipiero G, Heffler E, Pelaia C, et al. Allergy clinics in times of the SARS-CoV-2 pandemic: an integrated model. *Clin Transl Allergy*. 2020;10:23.
6. Jones R, Davis A, Stanley B, et al. Risk predictors and symptom features of long COVID within a broad primary care patient population including both tested and untested patients. *Pragmat Obs Res*. 2021;12:93-104.