The study of olfactory dysfunction in SARS-CoV-2 variants

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Dear Editor,

We read the paper entitled "Prevalence of acute olfactory dysfunction differs between variants of SARS-CoV-2—results from chemosensitive testing in wild type, VOC alpha (B.1.1.7) and VOC delta (B.1617.2)" [1]. In this paper, Hintschich et al. investigated the olfactory dysfunction (OD) in COVID-19 patients according to the variant (alpha B.1.1.7. versus B.1617.2). They reported that patients with wild type of SARS-CoV-2 self-evaluated their olfaction lower than those with the alpha or delta variant. The olfaction was self-assessed by patients with the 8-item NHANES pocket smell test or the 16-item identification test. Normosmia was defined as ≥ 75% correct answers. We congratulated authors for the study, but we wish to draw attention to some issues. The study of olfactory function in home-quarantined patients is an important issue for the future regarding the risk of future new-variant COVID-19 waves. However, the evaluation of olfaction by patients themselves remains limited.

First, OD may affect 1–20% of the general population [2]. Several common conditions may lead to impaired olfaction, including elderly, chronic rhinosinusitis with or without polyposis, laryngopharyngeal reflux, allergic rhinitis, or neurological diseases [3–6]. The medical history performed by the physician as well as the nasofibroscopic examination may identify some of these conditions and exclude the patient from the cohort. The exclusion criteria were not specified by Hintschich et al., while the inclusion of some patients with such conditions may bias the evaluations.

Second, the detection of OD may significantly depend on the test/clinical tool [7]. The use of 8-item NHANES pocket smell test in some patients or the 16-item identification test in others may make the comparison of data difficult. The most reliable psychophysical test remains the threshold, discrimination, and identification (TDI), and the TDI results may provide substantial differences between the three components (T, D, and I) among COVID-19 patients [8]. Moreover, TDI has the advantage to have validated thresholds defining anosmia, hyposmia, or normosmia. The consideration of normosmia according to ≥ 75% correct answers is not a validated threshold. In the same way, the visual analog scale is not a validated assessment tool. Some patient-reported outcome questionnaires, such as the Olfactory Disorder Questionnaire (available in German), may provide more robust information about OD, e.g., parosmia [9]. Interestingly, Langstaff et al. reported a significant correlation between Olfactory Disorder Questionnaire and the results of TDI test [10].

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Third, the realization of sniffin' sticks test by patients themselves may be biased by the patient mental state, motivation to have good results or the lack of understanding about the realization of the test (duration time of odor sniff, distance from the nose, etc.) [11].

Although some potential biases, the study by Hintschich et al.; however, it is important, because may suggest potential differences between wild SARS-CoV-2 and variants in the occurrence of OD. Boscolo-Rizzo et al. observed that 24.6% of patients affected by Omicron variants reported OD, which was significantly lower than the prevalence of OD in wild SARS-CoV-2 [12]. In the future, it could be interesting to evaluate the prevalence of the long-term OD (> 12 months) in the patients of the study of Hintschich et al. according to variants. The use of TDI and validated questionnaire may improve the reliability of evaluations.

In conclusion, although we are aware of the difficulties associated with a comprehensive assessment of the olfactory function, especially during the acute phase of the disease, we believe that every effort must be made to obtain as accurate data as possible on the chemosensory function of these patients. The psychological, functional, and social impact of the loss of smell and taste [13] is not less than that of sight and hearing, senses that no one would evaluate approximately.

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Declarations

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