
Letter to the Editor

In Response to *Anosmia and Ageusia: Common Findings in COVID-19 Patients*

In Reply:

We would like to thank Dr. Chang and colleagues for their interest in our article¹ and their relevant comments. Our first communication dates back to the very first period of the outbreak of the epidemic in Italy. We were among the first to report the high frequency of chemoreceptive disorders in COVID-19 patients. Our communication was based on data collected by colleagues from various emergency services in Italy, and we imagined it could be underestimated. Subsequently, from an objective clinical evaluation performed on 72 COVID-19 patients, we found a prevalence of olfactory and gustatory dysfunctions of 73.6%.^{2,3} We currently have a series of nearly 300 patients, and this finding appears confirmed.

Dr. Chang and colleagues offer interesting food for thought regarding the pathogenesis of chemoreceptive disorders in these patients. Recently, we thoroughly explored this topic.⁴ In our opinion, it is unlikely that the olfactory dysfunction is due to a spread of the virus up to the olfactory bulb and the subsequent induction of neuronal death. The olfactory functional reduction is in fact generally reversible in 1 to 2 weeks,² and central nervous system symptoms are not such a common clinical finding in these patients. As suggested by Brann et al.,⁵ We believe it is more likely that the virus targets nonneuronal support cells which, once infected, alter the function of the olfactory neurons. These cells, unlike neurons, are rich in angiotensin-converting enzyme 2 (ACE2) receptors. We agree with Dr. Chang and colleagues that a different concentration of these receptors between Asian and Caucasian races could be the basis of such a vastly different frequency of chemosensitive disturbances between European and Chinese case series.

Finally, regarding taste, we disagree with Dr. Chang and colleagues, as there does not appear to be a consequential

causal relationship between anosmia and ageusia. In our experience, gustatory dysfunctions are in fact more frequent than olfactory disorders.² We hypothesize that ageusia is probably related to the action of the virus on the ACE2 receptors of the taste buds, which similar to ACE2 inhibitors, inactivates membrane channels, producing alterations in taste perception.

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