Viral load and chemosensitive disorders in coronavirus disease 2019 patients: a correlation that need accurate investigation.

Luigi Vaira[1], Giacomo De Riu[1], Sven Saussez[2], and Jerome Lechien[3]

[1]Sassari University Hospital
[2]UMONS
[3]Universite de Mons

September 24, 2021

LETTER TO EDITOR

Viral load and chemosensitive disorders in COVID-19 patients: a correlation that need accurate investigation.

Dear editor,

We read with interest the article by Balajelini *et al.* [1]. The authors analysed correlations between viral load (VL) and the presence and duration of chemosensory disorders (CD) in a series of coronavirus disease 2019 (COVID-19) patients. Authors reported significant inverse correlation between these two variables. Other researchers did not find such significant correlations [2,3]. This topic is interesting from a pathogenetic rather than a prognostic point of view as most authors agree that VL does not represent a reliable prognostic index. We congratulate authors for the research. However, we would like to point out some critical issues that may have influenced their results in order to present some reflection points for further studies.

First, the assessment of the chemosensitive functions was not based on psychophysical tests. The use of psychophysical assessment is important because it has been shown that the self-reported olfactory and gustatory loss may significantly underestimate the real prevalence and recovery of CD in COVID-19 patients [4]. Second, the VL is indirectly determined, through the cycle threshold (CT) which is inversely proportional to the amount of viral nucleic acid in the sample. Although it is widely used due to its ease of execution and low cost, a growing number of authors are reporting that CT is an unreliable index to estimate the VL and, therefore, considering its use with great caution in clinical studies [5]. The CT value is largely influenced by the possible bias introduced by an incorrect sampling correlated to an operator-dependent procedure such as the naso-pharyngeal swab. On the contrary, direct quantitative tests allow to normalize the VL on the basis of the swab's concentration of human endogenous targets, normally present in the nasopharyngeal mucosa, eliminating the bias of any incorrect sampling [3,5]. Using a direct method of viral quantification and psychophysical tests, we did not find any correlation with either the severity or the persistence of CD at 60 days [3], supporting that chemosensitive dysfunctions in COVID-19 are independent from viral load and activity and rather related to individual factors.

A solid and accurate methodology is needed to explore such delicate topics, which can feed wrong attitudes in the lay public in the belief that the presence of a chemosensitive disorder can be an indication of a lower VL and therefore of a lower contagiousness or a better prognosis.

REFERENCES

1. Taziki Balajelini MH, Rajabi A, Mohammadi M, Nikoo HR, Tabarraei A, Mansouri M et al. Virus load and incidence of olfactory, gustatory, respiratory, gastrointestinal disorders in COVID-19 patients:

a retrospective cohort study. Clin Otolaryngol. 2021. Doi:10.1111/COA.13844.

2. Cho RHW, To ZWH, Yeung ZWC, Tso EYK, Chau SKY, Leung EYL et al. COVID-19 viral load in the severity and recovery from olfactory and gustatory function. Laryngoscope. 2020;130:2680-2685.
3. Vaira LA, Deiana G, Lechien JR, De Vito A, Cossu A, Dettori M et al. Correlations between olfactory pshychophysical scores and SARS-CoV-2 viral load in COVID-19 patients. Laryngoscope. 2021. Doi: 10.1002/lary.29777.
4. Vaira LA, Lechien JR, De Riu G, Saussez S. Chemosensory dysfunction in COVID-19: is there really a correlation with viral load? Am J Otolaryngol. 2021;42:103037.
5. Rhoads D, Peaper DR, She RC, Nolte FS, Wojewoda CM, Anderson NW et al. College of American Pathologists (CAP) Microbiology Committee Perspective : caution must be used in interpreting the cycle threshold (Ct) value. Clin Infect Dis. 2021;72:e685-e686.