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.

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The interest of fluticasone nasal spray in COVID-19 related anosmia is still not demonstrated

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Dear Editor,

We reviewed the article entitled: "*The outcome of fluticasone nasal spray on anosmia and triamcinolone oral paste in dysgeusia in COVID-19 patients*" [1]. Authors compared the smell and gustatory recovery in patients receiving fluticasone nasal spray and triamcinolone *versus* those who did not receive any treatment [1]. They observed better improvement of smell and taste evaluations in fluticasone group compared with controls. We acknowledge authors for this study that is one of the first study evaluating the usefulness of nasal corticosteroids in COVID-19 olfactory dysfunction. However, many points have to be addressed for future studies.

First, authors determined the presence of olfactory or gustatory dysfunctions through 5-odor and 4-taste tests. In practice, it is recommended to evaluate the olfactory function with a standardized test that assesses a large panel of odors [2]. The reliability, sensitivity, and specificity of the approaches dedicated to the olfactory assessment may substantially vary, with less sensitivity in tests composed of a little number of odors [2,3]. In that way, it seems conceivable that the use of 5 odors may underestimated the prevalence of olfactory dysfunction at baseline or after treatment. In the same vein, it is recommended to evaluate the taste with quantitative tests [4]. The use of quantitative evaluation makes particularly sense because COVID-19 may have subtle taste dysfunction characterized by a decrease of the taste perception [5]. The evaluation of taste through dichotomic response (yes/no) may misevaluate the presence of taste dysfunction, considering patients with positive perception as normal.

Second, it has been demonstrated that there may have a mismatch between the subjective self-reported olfactory dysfunction and the results of the psychophysical olfactory evaluations in COVID-19 patients [6]. The perception of the olfactory dysfunction, as well as the response to low-sensitivity odor testing, may have environmental and psychological components [7]. Thus, it is conceivable that the patients who received a nasal spray felt more confident about the recovery than those who did not receive a treatment, which may impact the result of the post-therapeutic smell evaluation. The use of a placebo nasal spray would be important to reduce this potential evaluation bias.

Third, it has been demonstrated that a significant proportion of COVID-19 patients with olfactory dysfunction have an edema of the olfactory cleft, which persists a few days [8]. In the study of Veer Singh et al., the evaluation of the olfactory cleft through a standardized clinical score [7] would be useful in both study groups in order to better understand the mechanisms of the olfactory dysfunction and the potential impact of fluticasone spray. In the absence of olfactory cleft evaluation, it is difficult to state the groups are comparable and, therefore, judge the nasal spray efficacy.

Fourth, it has been demonstrated that the high majority of patients recovered their smell and taste functions in the 2 weeks following the onset of the disorders [9]. The use of nasal spray at the onset of the olfactory dysfunction raises a cost-effectiveness question.

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