2-converter enzyme – including the nasal epithelial cells – are the target of attack for SARS-CoV-2. The attack on cells triggers the appearance of an inflammatory storm. The correlation between the severity of the infection and the degree and duration of OD is controversial. Although the relationship between worse olfactory score in the acute phase with exacerbated systemic inflammation and worse clinical outcomes has been reported, some studies have shown contradictory results. Mangia et al. demonstrated worse olfactory score in the acute phase in patients with worse clinical outcomes. However, Vaira et al. found no correlation between OD and poor prognosis. Similarly, Izquierdo-Dominguez et al. observed that the frequency of OD was more prominent in outpatient cases without pulmonary involvement. Regarding systemic inflammatory markers, studies have observed a relationship between elevated serum levels with the most severe forms of COVID-19, due to cytokine storm. The relationship of serum biomarkers with the highest severity of infection has also been constant in research. Chen et al. found higher CRP level in the severe group, but without statistical significance. Meta-analysis conducted by Zeng et al. demonstrated higher serum ferritin levels in patients with severe COVID-19. Izquierdo-Dominguez et al. observed in multivariate analysis that hospitalization and increase in serum CRP levels were associated with better olfactory. Analyzing the relationship between serological inflammatory markers in the serological phase and OD, Vaira et al. described that the correlations between olfactory and Serum levels of inflammatory markers were weak and not significant. In the present study, despite the statistically significant association between LDH levels and the CCCRC, the estimated correlation coefficient is low, corresponding to a weak correlation. In crossing the LDH with the degrees of severity of the CCCRC, no statistical significance was found. On the other than the other serum markers evaluated, the other serum markers did not present a significant correlation with the psychophysical test and were not associated with the degrees of severity of the CCCRC. The results found in this study are compatible with vaira et al. and Izquierdo-Dominguez et al., which may suggest little influence of systemic inflammation on the nasal mucosa.

Conclusion: The present study suggests that there is no relationship between high levels of serum markers – CRP, lymphocytes, D-dummy and ferritin – with worse late olfactory function in the post-COVID-19 patient. A low-grade correlation is observed between LDH and CCCRC; however, this association was not relevant when correlated with the degree of severity of OD.

Keywords: Coronavirus; Olfactory dysfunction; Inflammatory markers.

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Comparison among three brands of budesonide in the treatment of allergic rhinitis: An open label, randomized clinical trial

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Objective: To compare the efficacy of topical nasal budesonide brands available in Brazil in the treatment of allergic rhinitis (AR).

Methods: An open label, randomized clinical trial was conducted, involving patients with a confirmed diagnosis of AR. Fifty-seven individuals were randomized into three groups. Each group underwent a 30-day treatment cycle with one of the three brands of topical nasal budesonide currently available in Brazil: Budecort Acqua. (brand-name), Busonid. (brand-name) and Noex. (generic). Each patient was submitted to olfactory function tests (University of Pennsylvania Smell Identification Test, UPSIT), nasal obstruction questionnaire (Nose Obstruction Symptom Rating Scale, NOSE), Peak Nasal Inspiratory Flow (PNIF) and the Rhinitis Control Assessment Test (RCAT) before and after treatment. The results were analyzed using Analysis of Variance ANOVA (complemented by Tukey's test) and Kruskal–Wallis, for comparison purposes among the three groups.

Results: Nineteen patients received Budecort Acqua, 19 Busonid and 19 Noex. Of the 57 randomized patients, 50 returned for data collection after 30 days of treatment. The number of dropouts was not statistically significant among the groups ($p = 0.13$). All tests UPSIT, PNIF, NOSE and RCAT, significantly improved after 30 days of intervention in the three groups studied ($p < 0.01$). None of the tests showed a statistically significant difference when compared among the groups, both pre and post-treatment values, in both ITT and PP data analyses, UPSIT ($p = 0.24$ and $p = 0.26$), PNIF ($p = 0.83$ and $p = 0.79$), NOSE ($p = 0.74$ and $p = 0.58$) and RCAT ($p = 0.23$ and $p = 0.14$). No serious adverse effects were reported in any of the three groups analyzed by the present study.

Conclusions: This study showed that the generic form of nasal budesonide and two corresponding brand drugs have similar efficacy in the treatment of AR. Further trials are required to compare the efficacy and safety of generic and brand-name drugs on a long-term basis.

Keywords: Allergic rhinitis; Corticosteroid; Treatment.

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