

highlight a higher prevalence among children, due to a hyperactive response of T helper (Th) 2 lymphocytes, which initiate an IgE-induced systemic reaction, repressing the immune system until it is mature. Wise et al. (2018) demonstrate in their population-based studies increases in the prevalence of AR in adults in recent decades and that its prevalence in the United States is estimated between 11% (medical diagnosis) and 33% (self-report).

**Conclusion:** There was no statistically significant difference between the incidence rate and severity of COVID-19 in patients with allergic rhinitis treated with sublingual immunotherapy compared to patients with allergic rhinitis not receiving this type of treatment.

**Keywords:** Allergic rhinitis; Sublingual immunotherapy; COVID-19.

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### Correlation between measurements made on 3D photographs, degree of sleep apnea and quality of life in patients undergoing polysomnography

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**Objectives:** The aim of this research is to use 3D analysis of the facial surface of linear and angular measurements to correlate with the presence and degree of OSAS and its relationship with quality of life in patients undergoing polysomnography.

**Methods:** The study was approved by the Institution's Human Research Ethics Committee under number 47206821.3.0000.5529. This is a cross-sectional, comparative, analytical study. Patients were recruited from the Hospital Paranaense de Otorrinolaringologia with clinical suspicion of obstructive sleep apnea and who were referred for diagnostic polysomnography. Male and female patients aged at least 18 years, of all races/ethnicities, who underwent polysomnography, from August to October 2021, at Hospital Paranaense de Otorrinolaringologia and who agreed to participate in the study were included. study by signing the Free and Informed Consent Term (ICF). Participants who did not adequately answer the questionnaires and those who did not volunteer to carry out the questionnaire, in addition to those under 18 years of age, were excluded.

**Results:** The results showed that the 17 patients submitted to the polysomnography exam presented a mean FOSQ-10 equal to 14.82, 50% of the patients presented a score greater than 15. The Functional Capacity domain of the SF-36 presented the highest mean value ( $\mu = 80$ ). The AHI presented an average equal to 19.46, 50% of the patients had an index greater than 16.20. The mean oxyhemoglobin saturation Nadir was equal to 84.47, 50% of the patients had an index greater than 87. It is verified that there is a significant difference ( $p > 0.05$ ) in the FOSQ-10 score, for the different levels of AHI, patients with severe apnea have

the lowest FOSQ-10 score ( $\mu = 11.33$ ), while patients without apnea (AHI below 5) have the highest FOSQ-10 value ( $\mu = 17.83$ ).

**Discussion:** Few studies in the world compare 3D photogrammetry with the degree of apnea and its repercussions on the patient's quality of life. The difficulty in capturing 3D images may be the main limiting factor for further studies, mainly due to its current cost. A consolidated tool called Vectra XT 3D for capturing 3D images costs around US\$45,000, a considerable cost that prevents its dissemination. The approach for this study aimed at a practical and simpler methodology for evaluating the three-dimensional mesh of the face to study its relationship with sleep apnea. Additionally, a decrease in the quality of life of patients in the vitality domain was observed when compared to the FOSQ-10 questionnaire, showing less vitality in patients with greater functional limitation caused by apnea. As for the three-dimensional analysis of the face, it was found that the increase in the Zi-Sn/Go-Po index implies a decrease in the FOSQ-10 score, that is, the greater the impact of daytime sleepiness on the patient's activities of daily living, less vitality.

**Conclusion:** We showed that there is the possibility of acquiring a three-dimensional mesh from 2D facial images with low cost and easy access for the evaluation of facial patterns. More studies are needed to better understand the three-dimensional facial pattern and its correlation with sleep apnea. Since the beginning of studies to understand the pathophysiology of obstructive sleep apnea, retrognathism has been one of the preponderant factors. However, there is still a need for a better understanding of the anatomical relationships of the face with apnea. New studies are emerging to contribute to these answers. In this, it was possible to show that there is a more practical and lower cost method for the acquisition of three-dimensional mesh to be studied. However, it became clear that this analysis should not be for a simple mathematical analysis and more factors should be considered in more advanced studies.

**Keywords:** Polysomnography; Photogrammetry; Sleep apnea; Quality of life.

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