

Original Research Article

Control of rhinitis: does the facial mask influence?

Sara R. Azevedo^{1*}, Inês Cunha², Clara S. Alves¹, Miguel B. Coutinho¹, Luís Meireles¹

¹Department of Otorhinolaryngology, Centro Hospitalar Universitário Do Porto, Porto, Portugal

²Department of Imunoalergology, Centro Hospitalar Universitário Do Porto, Porto, Portugal

Received: 25 July 2022

Revised: 05 September 2022

Accepted: 06 September 2022

*Correspondence:

Dr. Sara R. Azevedo,

E-mail: saraquelaazevedo@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: The aim of the study was to understand the impact of face masks usage during the COVID-19 pandemic on allergic rhinitis to pollens symptoms.

Methods: A total of 200 patients was included in this study, with 100 patients having a previous diagnosis of allergic rhinitis to pollens and 100 patients having a diagnosis of non-allergic rhinitis. All patients answered the Rhinitis control assessment test (RCAT) and were asked about symptom control after introduction of the mandatory use of face masks in public. Patients with a RCAT score of 22 or higher were considered to have symptomatic control.

Results: 78% (n=78) of patients with allergic rhinitis to pollens reported improvement of symptoms after starting to use a face mask, with a mean score of 24.78 points (SD±3.13) on the RCAT. Among non-allergic rhinitis patients, 10% (n=10) reported improvement of symptoms, with 50% reporting worsening of symptoms and with a mean RCAT score of 21.54 (SD±3.23). A statistically significant difference ($p<0.01$) was found between the RCAT scores, with the allergic rhinitis group showing higher scores and, thus, better symptom control.

Conclusions: The face mask appears to act as a barrier for patients with allergic rhinitis, helping improve symptomatic control, making this an option for an adjuvant treatment for allergic rhinitis to pollens.

Keywords: Rhinitis, Facial mask, COVID-19, Pandemic

INTRODUCTION

Allergic and non-allergic rhinitis, is defined as a symptomatic disorder characterized by inflammation of the nasal mucosa, and where symptoms like nasal congestion, pruritus, sneezing, rhinorrhoea, and posterior nasal drainage predominate. It is globally divided into allergic and nonallergic and have a spectrum of disease ranging from mild to severe.^{1,2} Allergic rhinitis (AR) is very prevalent, especially in developed countries and has an estimated prevalence of more than 20% in Europe.^{3,4} Non-allergic rhinitis (NAR) is defined as a disorder without allergic or infectious aetiologies, and it is estimated that more than 200 million people suffer from NAR worldwide.⁵⁻⁷ Skin testing is helpful to differentiate nonallergic from allergic rhinitis. Both, allergic and nonallergic rhinitis, have a negative impact in quality of

life of the patients. It is known that the only therapeutic approach that have an impact on the disease are allergen-specific immunotherapy and allergen avoidance.³

The aim of the study was to determine if patients with mild and intermittent AR to pollens and NAR have their symptoms better controlled due to the use of the mask, during COVID-19 pandemic.

METHODS

All participants included in the study were informed of the main objectives of the study and that their participation would be voluntary. Verbal consent was given to participate. The study was approved by the Ethics Committee at Centro Hospitalar Universitário Do Porto.

This was a prospective study with a total of two hundred patients. One hundred with allergic rhinitis to pollens and one hundred with nonallergic rhinitis. The sample was followed on Centro Hospitalar Universitário do Porto in otorhinolaryngology and immunoallergy appointment between March and April of 2021. Patients with allergic rhinitis have skin prick test positive to pollens and patients with nonallergic rhinitis have negative skin prick test. The patients were asked about symptomatic improvement and Rhinitis control assessment test (RCAT), was applied, and a total score ≥ 22 points were considered controlled.

RCAT allows to assess the level of rhinitis control and consists of six questions with five answer levels. It did not require translation, cultural or linguistic adaptation since it is previously translated and validated to Portuguese.⁸

To statistical analysis, we use Statistical Package for Social Sciences (SPSS, version 27). Values of $p < 0.05$ were considered statistically significant.

RESULTS

Two hundred patients followed in otorhinolaryngology outpatient care responded to the question about symptomatic improvement and to RCAT questionnaire, half of whom with allergic rhinitis and the other half with non-allergic rhinitis. Demographic findings are shown in Table 1.

Of all patients with allergic rhinitis 78% (N=78) said to feel clinically better, with less symptoms, since the use of mask compared to previous years; 18% (n=18) did not notice differences and 4% (n=4) feel worse. On RCAT questionnaire the total point average in this group was 24.78 (SD $\pm$ 3.13) points with only eighteen patients with score below 22 points (Table 2). The group with non-allergic rhinitis, 10% (n=10) said to feel better, 40% (n=40) did not notice differences and 50% (n=50) feel worse since they use mask. On RCAT questionnaire the total point average in this group was 21.54 (SD $\pm$ 3.23) points with fifty-six patients with scores below 22 points (Table 2). In all questions of RCAT questionnaire the group with allergic rhinitis had higher values comparatively to the group with non-allergic rhinitis, especially in question number 6 ('During the past week, how well were your nasal or other allergy symptoms controlled?') that assesses symptom control.

Table 1: Demographic findings of the sample.

Groups	Mean age $\pm$ SD (years)	Sex	
		Female (n)	Male (n)
Allergic rhinitis	38.50 (SD $\pm$ 13.82)	62	38
Non-allergic rhinitis	42.08 (SD $\pm$ 15.12)	70	30

Table 2: RCAT scores in both groups.

Groups	RCAT score ($\pm$ SD)
Allergic rhinitis	24.78 (SD $\pm$ 3.13)
Non allergic rhinitis	21.54 (SD $\pm$ 3.23)

DISCUSSION

Rhinitis is classified as allergic and non-allergic, and non-allergic can be divided into inflammatory and non-inflammatory aetiology.¹ Vasomotor rhinitis is the most common type of nonallergic rhinitis and is triggered by environmental changes, like temperature, humidity and irritant odors.^{1,6} Both diseases have a negative impact on quality of life of these patients. The treatment of this disorders can be challenging, but intranasal steroids, intranasal and oral antihistamines are options.³ In allergic rhinitis to pollens allergen avoidance has an important weight in disease control.

During COVID-19 pandemic there was a recommendation by health entities to use masks outside. There were people reporting improvement in nasal complaints and other reporting worsening. With this study we proved that the mask could act as a barrier to the entry of allergen agents, such as pollens, and, in this way, improve the complaints associated with allergic rhinitis.

On the other hand, patients with nonallergic rhinitis, mostly experienced worsening of symptoms or did not notice any change. We believe this may be due to the increase of humidity caused by mask and, in this way, increase nasal complaints.

The study sample was reduced since the data were only collected during one month, which was a limitation of the study carried out.

CONCLUSION

As rhinitis is a pathology with a great impact on quality of life of patients, it is extremely important to be controlled and provide the best treatment. This study showed that the usage of mask has a positive impact on the allergic rhinitis to pollens improving the control of symptoms and it can be used as a preventive measure to reduce exposure.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Agnihotri NT, McGrath KG. Allergic and nonallergic rhinitis. Allergy Asthma Proc. 2019;40(6):376-9.
2. Ciprandi G. Treatment of nonallergic perennial rhinitis. Allergy. 2004;59:16-22.

3. Klimek L, Sperl A, Becker S, Mösges R, Tomazic PV. Current therapeutical strategies for allergic rhinitis. *Expert Opin Pharmacother*. 2019;20(1):83-9.
4. Bernstein DI, Schwartz G, Bernstein JA. Allergic Rhinitis: Mechanisms and Treatment. *Immunol Allergy Clin North Am*. 2016;36(2):261-78.
5. Lieberman PL, Smith P. Nonallergic Rhinitis: Treatment. *Immunol Allergy Clin North Am*. 2016;36(2):305-19.
6. Sur DKC, Plesa ML. Chronic Nonallergic Rhinitis. *Am Fam Physician*. 2018;98(3):171-6.
7. Hellings PW, Klimek L, Cingi C, Agache I, Akdis C, Bachert C, et al. Non-allergic rhinitis: Position paper of the European Academy of Allergy and Clinical Immunology. *Allergy*. 2017;72(11):1657-65.
8. Fernandes PH, Matsumoto F, Solé D, Wandalsen GF. Translation into Portuguese and validation of the Rhinitis Control Assessment Test (RCAT) questionnaire. *Braz J Otorhinolaryngol*. 2016;82(6):674-9.

Cite this article as: Azevedo SR, Cunha I, Alves CS, Coutinho MB, Meireles L. Control of rhinitis: does the facial mask influence? *Int J Otorhinolaryngol Head Neck Surg* 2022;8:792-4.