

Seasonal Allergic Rhinitis Symptoms in Relation to COVID-19

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To the Editor,

In Italy, the SARS-CoV-2 infection had its peak of contagion between March and April 2020, at the height of the pollen season. We currently recognize that despite olfactory dysfunction (hyposmia or anosmia)¹ is a major symptom of COVID-19, other nasal manifestations (rhinorrhea, obstruction) are reported;² these symptoms are similar to those of seasonal allergic rhinitis (AR). To avoid misdiagnosis that would lead to unnecessary anxiety and invasive diagnostic tests, we wanted to directly compare the clinical differences in terms of nasal symptoms between AR and SARS-CoV-2, in order to better differentiate the two conditions.

After Institutional review board request, we have administered the SNOT-22 tool³ to a cohort of 50 patients in the care of the Immunoallergology Unit of the Careggi University Hospital, with spring seasonal AR and history of SARS-CoV-2 negative swab or serology. As a comparison, we used the same tool to analyze patients hospitalized in the Infectious and Tropical Disease Unit with a positive SARS-CoV-2 pharyngeal swab and sinonasal symptoms. From the 121 patients hospitalized for SARS-CoV-2 in our institution, we excluded patients who not reported sinonasal symptomatology during the hospitalization (36 cases), patients affected by cognitive disorder (5 cases), deceased patients (19 cases), patients with a history of allergic rhinitis or another sinonasal disease (4 cases), and anyone who didn't want to take part in the study (14 cases), obtaining a COVID-19 group of 43 patients with mild-moderate disease. We compared, in the two groups, the mean score for each answer of SNOT-22 with unpaired two-tailed Student's t-test while the prevalence of the single symptom (non-zero value) was compared by Fisher's exact test. P values of less than 0.05

were regarded as statistically significant. Among AR patients, 47 (94%) used intranasal steroids, 27 (54%) antihistamines and 3 (6%) anti-leukotrienes. All the AR patients had an intermittent form, 34 (68%) mild and 16 (32%) moderate-severe disease. As can be seen in Table 1, the mean overall score was significantly higher in COVID-19 patients compared to AR patients. Analyzing the single items, the AR patients most frequently reported having to blow the nose and sneezing compared to COVID-19 patients, while cough, dizziness, and olfactory disorders were more prevalent in the latter group. The need to blow the nose, rhinorrhea, and sneezing were also significantly more severe in AR patients than in COVID-19 patients, while cough and olfactory disorders were worse in the COVID-19 group. As expected, almost all the items in the "psychological" and "sleep dysfunction" domains were reported to be significantly less frequent and milder in the AR population, thus emphasizing the impressive emotional component that afflicts the COVID-19 infected patients.

From a practical and clinical viewpoint, our data suggest that, even though there are some coinciding and potentially confounding features, the nasal symptoms of AR and COVID-19 can be differentiated on clinical

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Table 1. Proportion of Non-Zero Scores and Mean Score for All SNOT-22 Items With a Statistically Significant Difference Between the Two Groups.

SNOT-22 Item	COVID-19 Group (n = 43)	Allergic Rhinitis Group (n = 50)	P-Value
Need to blow nose	67%	88%	0.016
	1.26	2.46	0.001
Sneezing	54%	86%	0.001
	0.93	1.66	0.003
Running nose	63%	66%	0.105
	1	1.66	0.038
Cough	88%	60%	0.002
	2.91	1.12	<0.001
Loss of smell/taste	100%	32%	<0.001
	4.14	0.64	<0.001
Dizziness	42%	20%	0.002
	0.84	0.48	0.183
Wake up in the middle of the night	79%	56%	0.019
	2.19	1.32	0.010
Lacking of a good night's sleep	77%	58%	0.050
	2.37	1.56	0.027
Fatigued or tired during the day	88%	68%	0.019
	2.42	1.92	<0.001
Reduced productivity	95%	48%	<0.001
	3.16	1.04	<0.001
Reduced concentration	91%	48%	<0.001
	2.81	1.10	<0.001
Frustrated/restless/irritated	77%	56%	0.036
	2.21	1.30	0.006
Sadness	88%	50%	0.001
	2.44	0.94	<0.001
A feeling of shame	60%	22%	<0.001
	1.09	0.38	0.001
<i>Total score</i>	39.93	27.22	0.001

grounds. Therefore, also in the case of future undesirable COVID-19 outbreaks in concomitance with pollen season, clinicians and patients with AR should be reassured and appropriately taught to recognize and to discriminate between the two conditions.

Author Contributions

Bruno: Conceptualization, data curation, formal analysis, investigation, figure, resources, and writing - review and editing; Locatello: Conceptualization, data curation, resources, supervision, and writing - review and editing; Ciloni: data curation, resources; Fancello: data curation, resources; Vultaggio: data curation, supervision and editing; Maltagliati: data curation, resources; Rossi: data curation, supervision and editing; Vivarelli: data curation, resources; Almerigogna: data curation, supervision and editing; Piccica: data curation, supervision and editing; Lagi: data curation, supervision and editing; Maggiore: data curation, supervision and editing; Matucci: data curation, supervision and editing; Trotta: data curation, supervision and editing; Gallo: Conceptualization, supervision and writing - review and editing.

Ethical Approval

This study was approved by our institutional review board.

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Statement of Human and Animal Rights


This article does not contain any studies with human or animal subjects.

Statement of Informed Consent

Verbal informed consent was obtained from the patients for their anonymized information to be published in this article.

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