

Risk of SARS-CoV-2 exposure in a hospital-based allergy practice

To the Editor,

The resumption of activity in hospital practices after COVID-19 (SARS-CoV-2 infection) pandemic should be performed with the highest level of safety for both patients and healthcare professionals.¹

The World Health Organization (WHO) declared COVID-19 pandemic on 11 March 2020 with temporary closures of medical specialties and cessation of many commercial activities still in effect to limit the spread of the disease.² Spain is one of the European countries with the highest prevalence with 285,430 infected and almost 27,100 deaths due to the disease as of 30 July 2020. Spain entered the so-called phase 1 of progressive transition to normality at the beginning of May, allowing more flexibility in confinement after the measures decreed by the central government.³

The reopening of hospitals' specialties services also took place in this phase, including Allergy Services. For a safe reopening, it is necessary to know the prevalence of SARS-CoV-2 infection in patients seeking treatment for the first time after confinement.⁴ It is important to take into account that these patients may suffer from respiratory problems due to their allergic conditions such as asthma or rhinitis and that these could mask or mimic COVID-19 symptoms.²

To stratify the risk of contagion, we carried out a cross-sectional prevalence study of SARS-CoV-2 infection in patients and the probability to infect in an allergy practice after lockdown.

We carried out a monocentric, descriptive cross-sectional clinical research study in the Hospital Universitario Infanta Elena (Madrid). The first 100 patients that came to our Allergy Department and gave written consent to participate in the study were included between 15 May and 15 June 2020. The prevalence in Madrid during that period was either stable or declined slightly.³ SARS-CoV-2 arrest tests were carried out employing PCR (Hain Lifescience®) and IgM, IgG serological tests (Abbott®).⁵

The temperature was measured at arrival, and clinical data were extracted from patients' medical histories. Questionnaires were performed for descriptive signs and symptoms in the last 15 days to assess whether certain clinical features may influence the masking of COVID-19. The study protocol (PIC 086-20_HIE) was approved by the Clinical Research Ethics Committee of the Jiménez Díaz Foundation (Madrid, Spain).

The results obtained are shown in Table 1. The mean age of our population was 45, 2 ± 12.2 years, and 64% were women. All patients were asymptomatic on arrival at the consultation for COVID-19 symptoms, according to the questionnaire previously completed.

The majority of patients sought treatment for control of their respiratory pathologies (asthma and rhinitis) (57%), drug allergy (28%) and skin allergy (12%).

The incidence of positive PCR tests was 3%, also, 3% showed IgM (+) and IgG (-); 12% of patients were IgM (+) and IgG (+), and 6% patients were IgM (-) IgG (+). One of the patients with positive PCR also had positive results for IgM and IgG. Twenty-four per cent of the patients tested presented positive markers of COVID-19.

None of the patients presented temperatures higher than 37°C. Disclosed symptoms did not behave as good risk predictors. Thirty-nine and 37% of the patients complained of cough and dyspnoea, respectively, in the last 15 days. Nine of them presented hyposmia, 7% diarrhoea, 7% general discomfort and 3% fever. These symptoms were not statistically significant concerning positive PCR results, nor with the positive IgM results. One patient developed COVID-19 symptoms afterwards. This fact differs from those observed in studies based on symptomatic patients, where dyspnoea, diarrhoea and headache had consistently high specificity across studies for diagnosing COVID-19. Only fever had high sensitivity across several studies.⁶

Positive laboratory tests were obtained in 14/55 asthmatic patients (25.5%); 3 of the 14 (21%) were PCR positive; and the remainder were IgM+, IgG + or both. All of them denied symptoms. In patients that suffer rhinitis, the prevalence was 15.15% (10/66). Reviewing the results by the reasons of presentation to our allergy unit, we observed a positive PCR in 3 of the of 55 patients (5.26%) that complaint of respiratory allergic symptoms.

During the study period, 13,926 patients in Spain (0.03%) and 9,527 in Madrid (0.14%) were diagnosed with positivity for SARS-CoV-2 by molecular detection (PCR), and the prevalence was stable during that time.³ In our study, positive PCR involved 3% this means that the incidence of positive PCR tests for SARS-CoV-2 was statistically higher in our allergy practice than in general population ($P = .001$). The seroprevalence study of the central government has concluded that 11.7% of Madrid population has been infected with COVID-19. This data support that the prevalence in Madrid region double the number of Spain infected population (average 5.2%). Nevertheless, the seroprevalence in our study (21% of patients) was statistically higher than in general Madrid population ($P = .001$).

During the onset of symptoms, the serological antibody tests should not be used for diagnosing COVID-19 because of the low sensitivity of the test over that first week. However, it might be useful if PCR tests are not available or have negative results.⁶ IgM is considered a

TABLE 1 Results of PCR and IgM, IgG serological tests

	Total	PCR +	IgM+/IgG-	IgM+/IgG+	IgM-/IgG+	Positives results (%)
Total	100	3	3	12	6	24 (24%)
Gender						
Male	36	0	2	4	2	8 (22.2%)
Female	64	3	1	8	4	16 (25%)
Mean age (SD)	45.17 (15.2)	53.67 (12.2)	40 (18.2)	44.46 (15.85)	49.17 (15.85)	45 (15.5)
Asthma	55	3	1	6	4	14 (25.45%)
Rhinitis	66	2	0	5	3	10 (15.15%)
Propose os visit						
Respiratory allergy	57	3	1	6	2	12 (21.05%)
Drug allergy	28	0	2	4	3	9 (32.14%)
Food allergy	2	0	0	0	0	0 (0%)
Skin allergy	12	0	0	2	1	3 (25%)
Hymenoptera allergy	1	0	0	0	0	0 (0)
Specific symptoms in the past 15 days						
Fever	3	0	1	0	0	1 (33.3%)
Cough	39	2	0	2	1	5 (12.8%)
Diarrhoea	7	0	0	0	0	0 (0%)
Dyspnoea	37	1	0	0	0	1 (2.7%)
Hyposmia	9	1	0	1	0	2 (22.2%)
General discomfort	7	0	0	1	0	1 (14.3%)

marker of current or recent infection, while IgG is considered a marker of past infection.⁷ We detected 3% of patients with IgM (+) IgG (-). Being IgM positive does not mean they can transmit the disease, detection of isolated SARS-CoV-2 IgM in asymptomatic individuals may not suppose a SARS-CoV-2 infection,⁸ although one of our patients with IgM+/IgG- developed COVID-19 symptoms afterwards. IgM is a very sensitive but less specific test and raises the possibility of current or recent infection but does not confirm it. On the other hand, due to the high specificity of PCR, if it was positive means they can transmit the disease, as the virus is actually there, probably, there is some data to suggest prolonged non-infectious shedding after the illness,⁹ as it could be our patient with positive PCR, IgM and IgG.

In our roles as allergists and health care providers, we must recognize the differences between allergic diseases and SARS-CoV-2, considering that the three PCR positive observed were patients consulting due to respiratory allergic symptoms. The reasons why patients consult may have varied due to the pandemic situation and the fear of going to the hospital. The prevalence of serological SARS-CoV-2 in asthmatic patients was not statistically higher compared to the study group.

We have shown that there is a real risk of exposure to COVID-19 during the visits to our Department. Prevention measures should be taken according to the type of intervention that is going to take place. Duration of visit, the distance between patient and clinicians, and the use or not of protective physical measures are variables that need to be considered.

We propose that during the consultation, practitioners should at least wear FFP2 masks and some form of eye guard protective glasses or face shield. As the spirometry is a procedure that generates aerosols, we take into consideration the recommendations of the Spanish society of allergy and immunology (SEAIC).¹⁰ They recommend the use of personal protection equipment such as FFP2 or FFP3 masks, gloves, safety glasses and fluid repellent isolation gown.

To decrease the risk of transmission, of SARS-CoV-2, in hospital-based practices, it may be useful to perform serological and/or PCR tests in asymptomatic patients with respiratory diseases, pre-visit to attendance.

Our results suggest that 3 of every 100 patients attended are suffering the infection when they visit the Hospital, so every Department must be aware of this issue.

As health centres begin to open again as before the closure, keep and take all possible precautions according to the local and state official guidelines is a necessary condition to reduce the risk of transmission of the disease among health care providers, staff and patients.

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CONFLICT OF INTEREST

The authors have no conflict of interest regarding this article.

AUTHOR CONTRIBUTION

All the authors have collaborated in the design, inclusion of patients and the redaction of this manuscript.

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