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Astma and COVID-19

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Abstract

Humanity encountered a coronavirus (severe acute respiratory syndrome-coronavirus-2 (sars-cov-2)) pandemic on december 31, 2019 that is threatening the human race. The disease was first identified in the city of wuhan in china. It causes widespread pneumonia in the lungs, with the most significant laboratory findings being lymphopenia and eosinopenia in the blood count and elevated c-reactive protein and d-dimer. The findings increase with the progression of the clinical picture. Comorbidities in an individual determine the course of the disease, with the most important risk factors among those indicating a severe course being hypertension, ischemic heart disease, diabetes and chronic obstructive pulmonary disease. Asthma represents no increased risk in terms of catching the coronavirus disease-2019 (covid-19), and no report has been published to date associating its risk with a more severe disease course. Covid-19, as with all other respiratory infections, interferes with control of asthma. It is important to keep asthma under control during this period, as always. Patients should not stop taking their inhaled steroids, nor should they reduce the dose. Similarly, systemic steroids should not be stopped if prescribed to keep asthma under control. The use of anti-ige, anti il-5/il-5 alpha and anti il-4 alpha does not increase the risk of contracting covid-19, and these drugs may also be used to maintain asthma under control. A "to do" list should be provided to patients by their physicians as an action plan in the event of a worsening of asthma symptoms. Patients with allergic rhinitis can safely use their nasal steroid and antihistaminic drugs. Hand disinfectants that contain chlorhexidine may cause asthma attacks, and are not active against sars-cov-2. Using latex gloves to ensure hand hygiene may also lead to asthma attacks in individuals with a latex allergy. Washing the hands with water and soap should be preferred rather than using gloves. In conclusion, covid-19 does not constitute a greater risk to patients with asthma. Inhaled steroids and systemic steroids that keep the asthma under control can be used safely. Lowering a step in the treatment of asthma is not recommended in this period.

Keywords:

Allergy, asthma, coronavirus disease-2019, severe acute respiratory syndrome-coronavirus-2

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Introduction

The human race is facing a severe viral pandemic that has threatened humanity since first being identified on December 31, 2019. This virus was first identified in the city of Wuhan in China, and its origin is suggested to be a live animal market, and more specifically, bats.^[1-3] The International Committee on Taxonomy of Viruses named this new species of the human coronavirus "severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2),"

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and the resulting disease has been named "coronavirus disease-2019 (COVID-19)" by the World Health Organization.^[4,5] Transmission occurs especially by air droplets from human to human.^[2] The mean duration of incubation is 2–7 days although the manifestation of symptoms may take up to 14 days.^[2,6] The virus manifests with such complaints as muscle pain, diarrhea, headache, fatigue, dyspnea, fever, cough, anosmia, and ageusia and can lead ultimately to death due to respiratory and multiorgan failure.^[3] A widespread viral pneumonia is seen in lungs, while the most significant laboratory findings

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are lymphopenia, eosinopenia, and elevation of the C-reactive protein and D-dimer in blood tests.^[2,6] The findings become more severe with the progression of the clinical picture. The comorbidities in a patient can aid in the prediction of the clinical picture. Conditions such as hypertension, ischemic heart disease, diabetes, and chronic obstructive pulmonary disease are particularly the important risk factors that increase the severity of the disease.^[2,6-12] Whether SARS-CoV-2 constitutes an additional risk factor for asthma patients is a subject of particular interest, given its involvement with especially the respiratory tract. In addition, it is also important to be aware of the effects of any drugs the patient is taking. There is a lack of sufficient data to ascertain whether asthma is a risk for COVID-19, given the very recent outbreak of the virus, within only the last 4 months. That said, some comments can be made based on the data in hand.

Is asthma risk factor for Covid-19?

Asthma sufferers are at no additional risk of catching COVID-19 nor has a more severe progression of the disease in asthma sufferers been identified, as reported in some publications.^[13,14] The clinical course of COVID-19 in patients with asthma is similar to that of the normal population. Nevertheless, SARS-CoV-2 should be considered a virus that interferes with the control of asthma as a respiratory infectious disease is a risk factor for an asthma attack.^[15] Here, the most important approach in preventing the transmission of the virus is to obey the social isolation and hygiene rules as has been frequently reported. Considering that health institutions are a major source of the virus, the presentation of patients with asthma to health institutions should be kept to a minimum.^[15] Patients are recommended to postpone doctor's appointments provided that they have no serious problem and to consult their doctors by phone. Patients with asthma may be carriers of the virus although they may have no symptoms of COVID-19; therefore, no respiratory function tests should be performed unless absolutely necessary in patients who come to the hospital for follow-up visits, so as not to spread the disease.^[15] If a respiratory function test has to be done in such patients, the room should be well ventilated, the technician performing the test should wear all the necessary protective equipment and a N95 mask, and the test should be carried out in a negative pressure room, if possible.^[15]

Asthma Treatment and Covid-19

The long-term use of high-dose systemic steroids may facilitate the development of infectious diseases and can negatively affect the course of the disease. This is different in asthma, however. The Global Initiative for Asthma announced that patients with asthma should continue their inhaler steroid treatments and continue

taking any additional disease control drugs they are on.^[15] The doses of inhaler steroids should not be decreased, even if the asthma is under control during this pandemic, and regular inhaler steroid should absolutely be used in doses that keep the disease under control. Patients who are on regular systemic steroids for asthma control should also continue their treatment in the determined doses.^[15] The cessation of asthma control drugs interferes with asthma control, increases the risk of attack, and consequently increases the likelihood of the patient having to present to the hospital, thus increasing the risk of infection.^[15] Metered dose inhaler use is recommended in patients with exacerbation of asthma in comforting drug treatments rather than nebulizers, which can increase the risk of spreading the disease.^[15,16] Patients with more serious asthma should refrain from work and interventions that may interfere with the control of asthma, since they carry the risk of developing a serious course of COVID-19 if they have it, and so should continue their asthma treatment. The use of anti-IgE, anti-interleukin-5 (IL-5)/IL-5 alpha, and anti-IL-4 alpha receptor antagonist treatments does not increase the risk of contracting COVID-19 and does not increase the risk of a more severe course in patients who develop the disease.^[16] The most important risk factor for these patients is loss of asthma control, leading to a need to present to health institutions. Patients under biological agent treatment are recommended to continue their treatment; however, the intervals between the doses are recommended to be lengthened.^[15,16]

Spring is a particularly risky time for patients with pollen allergy, which can trigger asthma attacks. Remaining at home for isolation and quarantine is also a risk factor, since it can trigger attacks in patients with asthma who have allergies to house dust, being also a risk factor for the loss of control of the disease. As such, patients should not absolutely stop inhaler steroids or other controlling drugs so as not to cause their asthma to get out of control. Accessing drugs may be challenging in periods of quarantine. The Ministry of Health of the Turkish Republic and the Social Security Institution extended the drug reports of patients starting from March 1, 2020, and hence, patients can now obtain medications from pharmacies without a prescription. The medical reports of patients with disability reports with an approaching deadline have also been extended.

Differential diagnosis Covid-19 and asthma and allergic rhinitis

Around 80% of patients with asthma have allergic rhinitis, and about 40% of patients with allergic rhinitis have allergic asthma. Controlling allergic rhinitis symptoms is crucial for asthma control.^[15,17,18] Patients with allergic rhinitis can also be informed that they can use their nasal steroids safely during this pandemic.^[19]

Table 1: Symptoms to be aware of in differentiation the of coronavirus disease-2019, allergic rhinitis and asthma

Symptoms	COVID-19	Allergic rhinitis	Asthma
Nasal discharge, itching, and nasal congestion	+	+++	-
Sneezing	+	+++	-
Itching and watering of the eyes	+	+++	-
Dyspnea	+++	-	+++
Cough	+++	-	+++
Wheezing	+	-	+++
Headache, sore throat	+++	-	-
Weakness, fatigue	+++	+	-
High fever	+++	-	-
Muscle pain	+++	-	-
Diarrhea, nausea, vomiting	+++	-	-
Anosmia and ageusia	+++	+	-

The greater the number of (+) symbols, the greater suggestion of the disease; a (-) symbol indicates that the symptom is not associated with that disease.
 COVID-19: Coronavirus disease-2019

When patients with allergic rhinitis stop using their drugs to control their symptoms, especially during the pollen period, their complaint of sneezing will be increased, and if they are infected with SARS-CoV-2, they will spread the virus to their surroundings. The same is applicable for patients with house dust allergies. When patients with pollen allergy obey the isolation rules and stay inside, their pollen contact will be diminished, and thus, their complaints will be kept under control. They should aerate their houses in the afternoon, and if they plan to do it in the morning, they should stay in another room. When patients with allergic rhinitis use effective masks due to pandemics when going out, pollen contact will be decreased and their complaints, and thus their need for medications, will also be decreased. Patients with allergic rhinitis with house dust mite allergies are a little unlucky during this period, since the duration of their stay in closed environments is increased. As such, they are recommended to use their medications regularly and follow the suggested measures to protect themselves from house dust mites. It is important that patients continue to regularly use their nasal steroids and antihistaminic drugs.^[16,19] An important point that physicians should be aware of is the need to differentiate between patients with allergic asthma and rhinitis and patients with COVID-19. The symptoms that can be evaluated in favor of COVID-19 and of allergic asthma-rhinitis are presented in Table 1. The symptoms that can be evaluated in favor of COVID-19 and of allergic asthma-rhinitis are presented in Table 1. Furthermore, new signs in a patient with a prior asthma diagnosis, such as fever, gastrointestinal system findings, anosmia, sputum production, headache, and muscle pain, may be evaluated in favor of COVID-19 infection.^[9] To differentiate between an asthma attack and COVID-19 is also quite important in a patient with a prior diagnosis of asthma. Keeping a patient with no SARS-CoV-2 together with infected patients will result in the development of the infection in that patient. If the patient is infected already, keeping that patient with

sterile others will cause the infection of other patients. As such, a differential diagnosis is vital, especially in this group of patients.

Laboratory findings may be of help in addition to the clinical picture in a differential diagnosis. The presence of lymphopenia and eosinopenia may be evaluated in favor of COVID-19, while the presence of eosinophilia may be evaluated in favor of asthma.^[2,15] A patient presenting with complaints of cough, dyspnea, and wheezing should first be considered as having an asthma attack; however, strict attention should be paid to the wearing of personal protective equipment and to follow the rules of social distancing and isolation, considering the possibility that anyone can become infected during such a pandemic.^[9,15]

Finally, individuals should follow the stated hand disinfection measures although such disinfectants may affect patients with asthma. In particular, those with chlorhexidine allergies should not use hand disinfectants including this material.^[20-22] Considering the resistance of the SARS-CoV-2 to chlorhexidine, patients with asthma should clean their hands with soap and water or should use disinfectants that include at least 60% alcohol when these are unavailable. Similarly, patients with latex allergies should not use latex gloves, but should instead wash their hands with soap and water where available, and should use hand disinfectants including alcohol when hand washing is not possible.^[23]

In conclusion, asthma is not an additional risk for COVID-19 although the control of asthma is especially important in this period. Patients with asthma should be recommended to continue taking their inhaler steroids to keep their asthma under control, as well as any other control drugs they are on. The stepping down of asthma medication should not thought due to loss of control of asthma.^[15] Patients should be given written action plans, since the presentation to health

institutions during this period increases the risk of SARS-CoV-2 infection.^[15,16] Education on social isolation, preserving social distancing, limiting physical contact, hand hygiene, and correct mask use should be provided to patients to prevent the risk of infection transmission.

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Conflicts of interest

There are no conflicts of interest.

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