



THE POSSIBILITIES OF THE INFLUENCE OF BRONCHIAL ASTHMA AND COPD ON OUTCOMES AND SURVIVAL RATES IN PATIENTS WITH COVID-19

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Article history:	Abstract:
Received: September 6 th 2024 Accepted: October 4 th 2024	It is known that the presence of certain concomitant diseases can provoke a severe course of COVID19 and increase mortality among patients. However, the question of the possible impact of bronchial asthma and COPD on outcomes and survival rates in patients with COVID-19 remains relevant.
Keywords: Bronchial asthma, COVID-19, SARS-CoV-2 coronavirus infection, chronic obstructive pulmonary disease.	

INTRODUCTION. The SARS-CoV-2 virus is a highly pathogenic virus. The course of the disease proceeds in different ways and differs for each person for a number of reasons. The most significant are age, the presence of chronic respiratory diseases, hypertension, and diabetes mellitus. This disease can range from an asymptomatic course to a severe respiratory disease with the likelihood of developing acute respiratory distress syndrome, pulmonary edema and death due to complications. Transmission of the virus in the population from a sick person to a healthy person through asymptomatic forms is one of the main problems from the point of view of epidemiology and public health. The purpose of this study is to study the course of coronavirus infection in patients with bronchial asthma and chronic obstructive pulmonary disease, to study the patterns between the severity of the patient's condition and the presence of concomitant pathology, to summarize the knowledge available at the time of writing about the key links in the course of bronchial asthma, coronavirus infection, as well as focusing on the specifics of patient therapy with bronchial asthma. The author presents his own approach to the study of the features of the course of coronavirus infection in patients with bronchial asthma and chronic obstructive pulmonary disease, and the interpretation of the results obtained. The materials of this study are patients registered at the dispensary for chronic obstructive pulmonary disease and bronchial asthma, as well as those with a confirmed case of coronavirus infection, who sought medical help and, subsequently, were hospitalized. The research method is a cross-sectional version of the hypothesis study. In the course of this study, the following conclusions were obtained: 1) There is a certain pattern of the course of SARS-CoV-2 with bronchial asthma and chronic obstructive pulmonary disease. 2) Patients with bronchial asthma tolerate the disease more easily than those with chronic obstructive pulmonary disease. 3)

Patients with COVID-19 and concomitant bronchial asthma should continue their basic therapy, including taking inhaled glucocorticosteroids (or previously prescribed systemic glucocorticosteroids). Discontinuation of inhaled glucocorticosteroids can lead to severe asthma. 4) It is necessary to search for new therapeutic approaches in the treatment of the new SARS-CoV-2 coronavirus infection in patients with the background disease chronic obstructive pulmonary disease, especially when using basic therapy for the treatment of chronic obstructive pulmonary disease with a proven anti-inflammatory effect on the bronchopulmonary system.

With the emergence of the COVID-19 pandemic (SYUPAVIRUS Disease-2019) in 2019, caused by SARS-CoV-2, not only the tactics of patient management in the detection of acute respiratory diseases (ARI) have changed in the healthcare system, but also the algorithm for monitoring the course of the disease in comorbid patients has been changed. According to the results of large-scale studies, scientists have identified risk factors that contribute to the development of severe coronavirus infection. Such factors include diabetes mellitus, old age, a history of cardiovascular diseases, chronic respiratory diseases (CKD). The outbreak of a new coronavirus infection in December 2019 in Wuhan (China) became the trigger factor for the spread of the pandemic across the planet. Over time, it became clear that among patients with a history of CKD, severe complications during COVID-19 are noted in patients with chronic obstructive pulmonary disease (COPD), and with bronchial asthma (BA), the risk of severe complications persists only in a certain category of patients, and according to some authors, there is no risk at all [3,10,11].

Currently, it has been proven that viruses affecting the respiratory system play a role in the onset of bronchial asthma and cause an exacerbation of an existing disease. Such viruses include



metapneumovirus, rhinovirus, influenza A and B viruses, respiratory syncytial virus, parainfluenza and adenovirus, coronavirus [10]. In some cases, an ongoing viral infection increases the risk of developing pneumonia, bacterial infections of the lower respiratory tract, acute respiratory distress syndrome and death in both BA and COPD patients [6,11], but there are studies that present facts indicating a low probability of hospitalization of BA patients with acute respiratory infections compared with patients COPD [10].

The identification of the risk factors mentioned above provides valuable information about the pathogenesis of COVID-19, approaches to basic, targeted and allergen-specific therapy (ASIT) during a pandemic [2].

Despite the leap in the field of prevention and treatment, bronchial asthma remains a significant problem for the entire healthcare system to this day [13]. In the period from 1990 to 2015, the prevalence of AD increased by 12.6% worldwide [8]. According to the data obtained in 2019, the number of patients with asthma amounted to 262 million, 461 thousand cases resulted in death [9]. Acute respiratory viral infections are a frequent trigger in the development of severe exacerbations of asthma in adults and children [8].

With the onset of the COVID-19 pandemic, doctors assumed that patients with a history of bronchial asthma and/or allergies would be at the greatest risk of developing a severe course of the disease,-

nako, D.M. Halpin et al. We analyzed statistical data obtained from medical workers from different countries and came to the conclusion that asthma and allergies are not factors that increase the risk of COVID-19 infection and contribute to the severe course of the disease. In the course of the conducted studies, it has not been proven that allergies and the presence of asthma in the anamnesis contribute to the development of severe COVID-19, and do not increase the risk of death from COVID-19 [7].

Investigating SARS-CoV-2, scientists found out that the virus contains a highly glycosylated spike glycoprotein, which has a high affinity for cell receptors containing angiotensin converting enzyme type 2 (ACE-2) [5], thanks to which it penetrates into target cells containing ACE receptors-2. The presence of cellular transmembrane serine protease-2 (TMPRSS2) promotes the unification of the virus with ACE-2 by activating its S-protein, which is necessary for the penetration of SARS-CoV-2 into the cell. ACE-2 receptors are mainly located in the epithelial cells of the nose, lungs, mouth, heart, kidneys and intestines. In some people, it was found on immune cells that ACE-2 has a tendency to co-

express with HLA-DRB1, which is responsible for the functioning of the immune system [2,4].

In the population, allergic asthma accounts for about 60% of all cases of asthma [2]. It is known that ACE-2 is stimulated by interferon, therefore, its level increases with the penetration of a viral infection [2]. The epithelial cells lining the bronchi in AD have an insufficient interferon- β response to the introduction of a viral particle, which can weaken the natural increase in the expression of ACE-2 when infected with COVID-19, and this in turn affects the severity of the disease. It was found that in people who suffer from allergies and allergic asthma with elevated levels of immunoglobulin, the number of ACE-2 receptors is reduced. In patients with non-atopic asthma, no such decrease in ACE-2 receptors was found in the composition of cells [18]. In patients suffering from asthma, eosinophils produce predominantly proinflammatory cytokines that have a damaging effect on cells due to the release of reactive oxygen species.7 Analyzing the data of an epidemiological study on morbidity in China during the COVID-19 pandemic, AD was not considered as a risk factor for the development of a severe course of the disease complicated by pneumonia [7].

Conclusion. The presence of COPD has a significant impact on the severity of the course and outcome of COVID-19. Timely diagnosis of an infectious disease, high-quality examination, appointment of effective therapy and subsequent rehabilitation with supervision by a specialized specialist are of great importance for patients with COPD. According to recent data, the presence of bronchial asthma in a number of patients may contribute to a more severe course of COVID-19, however, this issue requires further research. At the same time, all patients with chronic lung diseases, without exception, must comply with the basic measures for the prevention of COVID-19 infection and carry out vaccination on time.

LIST OF LITERATURE

1. Авдеев С.Н., Айсанов З.Р., Белевский А.С. Клинические рекомендации по диагностике и лечению хронической обструктивной болезни легких // Пульмонология. 2022. Т. 32(3). С. 295-355.
2. Белевский А.С., Визель А.А., Зырянов С.К. Бронхиальная астма в период пандемии COVID-19: особенности течения и лечения // Терапевтический архив. 2021. Т. 93(3). С. 239-246.
3. Васильева О.С., Гусаков А.А., Чучалин А.Г. Хроническая обструктивная болезнь легких



- и профессиональные факторы // Пульмонология. 2019. Т. 29(2). С. 219-225.
4. Демко И.В., Гордеева Н.В., Крапошина А.Ю. Особенности ведения пациентов с бронхиальной астмой в условиях пандемии COVID-19 // РМЖ. 2021. Т. 29(5). С. 31-35.
 5. Зайцев А.А., Оковитый С.В. COVID-19 и болезни органов дыхания: от морфологических основ до терапевтических аспектов // Пульмонология. 2020. Т. 30(5). С. 525-537.
 6. Княжеская Н.П., Баранова И.А. Бронхиальная астма и COVID-19: актуальные вопросы // Астма и аллергия. 2020. № 3. С. 12-16.
 7. Ненашева Н.М. Бронхиальная астма и COVID-19: риски и возможности // Российский аллергологический журнал. 2020. Т. 17(2). С. 7-18.
 8. Синопальников А.И., Фесенко О.В. COVID-19 и обострение ХОБЛ // Терапевтический архив. 2021. Т. 93(11). С. 1339-1346.
 9. Фомина Д.С., Лисицына Е.М., Харитонов Е.И. Эпидемиологические особенности бронхиальной астмы в Москве в период пандемии COVID-19 // Пульмонология. 2021. Т. 31(4). С. 422-429.
 10. Чучалин А.Г., Авдеев С.Н., Айсанов З.Р. Российское респираторное общество. Федеральные клинические рекомендации по диагностике и лечению хронической обструктивной болезни легких // Пульмонология. 2023. Т. 33(1). С. 7-45.
 11. Bafadhel M., Peterson S., De Blas M.A. COVID-19 and COPD: a narrative review of the basic science and clinical outcomes // Respir Res. 2020. Vol. 21(1). P. 299.
 12. Global Initiative for Asthma. Global Strategy for Asthma Management and Prevention, 2023. Available from:
 13. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global Strategy for Prevention, Diagnosis and Management of COPD, 2023 Report. Available from: