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**BRONCHIAL ASTHMA IN CHILDREN DURING THE COVID-19  
PANDEMIC: A FEATURE OF THE COURSE**

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**Abstract.** The aim of the study is to assess changes in the course of asthma during the COVID-19 pandemic. Material and methods. In the children's department of the 1st Zangiata infectious diseases hospital from March 2020 to January 2021, 27 children with BA of varying severity were observed. We also analyzed the clinical picture in 56 children aged 8–16 years with intermittent and persistent asthma and in 44 children without asthma, who were observed on an outpatient basis in polyclinics in Tashkent. Results. The initial symptoms of COVID-19 developed subacutely: from subfebrile condition in 72 (56.6%) children, and proceeded as acute respiratory infections. Children with BA were significantly more likely to have dry obsessive cough 63 (75.9%). The high frequency of these symptoms in children with asthma may be associated with airway hyperresponsiveness and the presence of allergic rhinitis (AR) (21 (25.3%) children with asthma have concomitant AR). Mucous or muco-serous discharge from the nasal passages, as well as episodes of sneezing, 21 (25.3%) were frequent manifestations. In the group of children without BA, blockage of nasal breathing was noted. Complaints of anosmia, which is one of the common signs in adult patients with COVID-19, were reported in about 7 (8.4%) patients in both groups, which is possibly related to age characteristics and sensations. Conclusion. Based on the actual clinical material, it was shown that the new coronavirus infection in children with BA is easier. According to our data, COVID-19 in children with BA was mostly mild, with moderate clinical symptoms.

**Key words:** Bronchial asthma, children, retrospective analysis, Covid - 19.

**introduction.** At the end of 2019, humanity faced a serious challenge - the pandemic of the new coronavirus infection Coronavirus disease 2019 (COVID-19). The first and most important target for COVID-19 infection is the respiratory system, and COVID-19 leads to pneumonia and severe respiratory failure. It is known that patients with bronchial asthma (BA) are at risk of more severe outcomes in respiratory viral diseases [1,3,12]. With insufficient BA control, the severity of the exacerbation caused by the virus increases sharply [2,6,7]. Many patients with asthma have a decrease and / or delayed response of innate antiviral immunity with deficiency and delayed responses associated with pulmonary interferons IFN- $\alpha$ , IFN- $\beta$  and IFN- $\lambda$ . INF- $\lambda$  deficiency is associated with increased severity of asthma exacerbations [2,5,7].

It is understood that the symptoms of COVID-19 can be similar to those of an exacerbation of asthma, such as dry cough and shortness of breath. Fever, a common symptom of COVID-19, can help differentiate it from asthma flare-ups, although fever is sometimes present in virus-induced asthma flare-ups. Examination of the child's medical history, in particular travel history, close contact with an infected COVID-19, and the absence of a previous atopic history in the child can also help with differential diagnosis [5,9,11]. The leading international associations and societies of specialists dealing with the problem of asthma are the Global Initiative for Asthma (GINA), the European Academy of Allergy and Clinical Immunology (EAACI), the American Academy of Allergy , Asthma and Immunology (AAAAI), the American Thoracic Society and the European Respiratory Society - have formulated their position and recommendations on the management of children with asthma in the context of the spread of COVID-19: 1) poor control over asthma is a risk factor for a more severe exacerbation of asthma caused by the virus; 2) maintaining optimal asthma control will inevitably reduce the risk of severe outcomes from COVID-19; 3) all variants of basic anti-inflammatory treatment (ICS, combined ICS + long-acting  $\beta$ 2-agonists (LABA), monoclonal antibodies) significantly reduce the risk of BA exacerbations, most of which are caused by a virus); 4) anti-

inflammatory therapy of asthma should be continued until asthma control is achieved, which will help reduce the risk of an unfavorable course of COVID-19 [4,8,10].

**The aim of** the study is to assess changes in the course of asthma during the COVID-19 pandemic.

**Material and methods.** In the children's department of the 1st Zangiata hospital from March 2020 to January 2021, 27 children with BA of varying severity were observed. We also analyzed the clinical picture in 56 children of 8-16 years old with intermittent and persistent BA (average age -  $10.8 \pm 1.2$  years) and in 44 children without BA (average age -  $10.6 \pm 1.3$  years) monitored on an outpatient basis in polyclinics in Tashkent. We have carried out a retrospective assessment of the manifestations and effects of COVID-19 in children with asthma of varying severity according to the data of outpatient records and case histories. In most cases, coronavirus infection was detected during examination in connection with family contact 97 (76.3%).

**Results.** In all children, the course of the disease was mild and was not accompanied by a clinically significant exacerbation of asthma. All children followed the recommendations for basic therapy with the appointment of inhaled glucocorticosteroids (ICS) or an increase in their dose when a viral infection was attached. The initial symptoms of COVID-19 developed subacutely: from subfebrile condition in 72 (56.6%) children, and proceeded as acute respiratory infections. Children with BA were significantly more likely to have dry obsessive cough 63 (75.9%). The high frequency of these symptoms in children with asthma may be associated with airway hyperresponsiveness and the presence of allergic rhinitis (AR) (21 (25.3%) children with asthma have concomitant AR). Mucous or muco-serous discharge from the nasal passages, as well as episodes of sneezing, 21 (25.3%) were frequent manifestations. In the group of children without BA, there was a blockade of nasal breathing, mucopurulent discharge of a prolonged course. Complaints of anosmia, which is one of the common signs in adult patients with COVID-19, were reported in about 7 (8.4%) patients in both groups, which is possibly related to age characteristics and sensations. Manifestations of bronchial obstruction during the period of COVID-19

in the form of attacks of suffocation, shortness of breath, distant wheezing without a previous pronounced exacerbation of the underlying disease were observed in only 13 (15.6%) patients, which may indicate an exacerbation of asthma against the background of SARS-CoV-2 infection. The reason for this exacerbation was the lack of control and adequate basic therapy. Deterioration of the parameters of external respiration function (FVD) according to peak flowmetry data during this period was noted in 17 (20.1%) patients. During the period of illness, all were prescribed basic therapy: ICS + bronchodilators. Some of the symptoms persisted after the elimination of the main manifestations of COVID-19, which is regarded as partial control; most often it was observed in children with moderate asthma and required prolonged therapy. The data obtained coincide with the published results of other studies from different countries, indicating a rare exacerbation of asthma against the background of COVID-19. The rest of the children had only a dry cough without changes in the lungs. Difficulties in diagnosing COVID-19 in children with asthma are associated with the similarity of the clinical picture with respiratory infections of various etiologies. When analyzing the main manifestations of COVID-19 in children with BA, we did not reveal specific symptoms. A severe course of coronavirus infection was noted in 1 patient with moderate asthma who did not receive basic therapy at the time of illness. The severity of the course was due to bilateral lung damage, respiratory failure 0-I degree. It is important to note that basic inhalation therapy was not resumed in children. Systemic corticosteroids were prescribed. Recovery was observed after 12-14 days. In the group of children without BA, 3 children after suffering SARS-CoV-2 infection persisted for a long time with manifestations of bronchial obstruction. Against the background of taking GCS in 2 children, the symptoms were eliminated after 2 weeks.

The analysis of therapy in children with asthma showed that the majority in the anamnesis received leukotriene receptor antagonists (ALR), ICS in courses of 2-3-6 months and short-acting bronchodilators as needed. With the addition of coronavirus infection, 52 (62.6%) were on ALR therapy, 17 (20.4%) received ICS, 14 (16.8%) did not receive any treatment.

Gastrointestinal manifestations in the form of dyspeptic symptoms and moderate abdominal pain were observed in 7 (15.9%) children without BA and significantly more often in the group of children with BA 19 (22.8%). Also, a third of the children had symptoms of asthenization: weakness, episodes of dizziness, aggravated or arising from a change in body position from horizontal to vertical, rapid fatigue, decreased concentration of attention of varying severity. Noteworthy is the fact that the decrease in tolerance to physical and emotional stress revealed in almost all patients 112 (88.1%) persisted 3 months after the infection. These data confirm the need for observation, examination and prolonged rehabilitation of children with BA who have undergone coronavirus infection.

**Discussion.** Our study showed that children with asthma have a predominantly mild course of coronavirus infection with a predominance of symptoms from the upper respiratory tract and moderate intoxication. The data obtained generally coincide with the results of international studies[12]. As demonstrated in our study, the difficulty of diagnosing COVID-19 in children with asthma is associated with the similarity of symptoms with an exacerbation of asthma and is indistinguishable from an exacerbation against the background of a viral infection of a different etiology. At the same time, manifestations of bronchial obstruction were observed in children with incomplete control or with inadequate BA severity with basic therapy. On the other hand, it is known that children with BA, which is an atopic disease, are more susceptible to viruses. It should be noted that the majority of children with mild BA received basic ICS therapy, which may have determined the severity of COVID-19. GINA 2019–2020 emphasizes the need to continue basic BA therapy during the COVID-19 pandemic, including with corticosteroids.

**Conclusion.** In vitro studies have shown that ICS can significantly suppress coronavirus replication and cytokine production. Patients with severe asthma are advised to continue with biologic therapy and evaluate the possibility of using them at home. Patients with severe or uncontrolled asthma who are at increased risk of developing severe COVID-19, especially during the epidemic season, should continue to receive ICS or combination drugs.

Based on the actual clinical material, it was shown that the new coronavirus infection in children with BA is easier. According to our data, COVID-19 in children with BA was mostly mild, with moderate clinical symptoms.

### **References**

1. Brough H. A. et al. Managing childhood allergies and immunodeficiencies during respiratory virus epidemics–The 2020 COVID-19 pandemic: A statement from the EAACI-section on pediatrics // *Pediatric Allergy and Immunology*. – 2020. – T. 31. – №. 5. – C. 442-448.
2. Fomina DS et al. Management of patients with COVID-19 and bronchial asthma: a review of the literature and clinical experience of the authors // *Practical Pulmonology*. - 2020. - No. 2.
3. Furman E. G., Khuzina E. A., Repetskaya M. N. Bronchial asthma in children under the conditions of a new coronavirus infection // *Doctor. RU*. - 2020. - T. 19. - No. 10. - S. 42-47.
4. Hartmann-Boyce J. et al. Asthma and COVID-19: review of evidence on risks and management considerations // *BMJ Evidence-Based Medicine*. – 2021. – T. 26. – №. 4. – C. 195-195.
5. Khalmatova B. T. et al. Influence Of Ecological Factors On The Development And Progress Of Bronchial Asthma In Children // *European Journal of Molecular & Clinical Medicine*. – 2021. – T. 7. – №. 8. – C. 4374-4377.
6. Tashmatova G. A., Khalmatova B. T., Mirsalikhova N. K. Modern methods for diagnosing the function of external respiration in children with bronchial asthma // *ACADEMICIA: An International Multidisciplinary Research Journal*. – 2021. – T. 11. – №. 4. – C. 844-847.
7. Levina Yu. G. et al. Features of the course of bronchial asthma and respiratory morbidity in children during the COVID-19 pandemic: results of a retrospective comparative observational study // *Bulletin of the Russian Academy of Medical Sciences*. - 2020. - T. 75. - No. S5. - S. 455-464.



8. Mirrahimova M. K. et al. Bronchial asthma: prevalence and risk factors in children living in the industrial zones of the Tashkent region //Central Asian Journal of Medicine. – 2020. – T. 2020. – №. 1. – C. 29-35.
9. Osipova V. V. et al. Bronchial asthma and COVID-19: a review of recommendations for the management of patients with bronchial asthma during the COVID-19 pandemic // Pulmonology. - 2021. - T. 31. - No. 5. - S. 663-670.
10. Papadopoulos N. G. et al. Impact of COVID-19 on pediatric asthma: practice adjustments and disease burden //The Journal of Allergy and Clinical Immunology: In Practice. – 2020. – T. 8. – №. 8. – C. 2592-2599. e3.
11. Ruano F. J. et al. Impact of the COVID-19 pandemic in children with allergic asthma //The Journal of Allergy and Clinical Immunology: In Practice. – 2020. – T. 8. – №. 9. – C. 3172-3174. e1.
12. Vultaggio A. et al. Considerations on Biologicals for Patients with allergic disease in times of the COVID-19 pandemic: an EAACI Statement //Allergy. – 2020. – T. 75. – №. 11. – C. 2764-2774.