

CLINICAL COURSE OF BRONCHIAL ASTHMA IN CHILDREN IN COVID-19 PANDEMIC PERIOD

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ABSTRACT

At the beginning of the pandemic, somatic pathology, including asthma, was considered a risk factor for severe coronavirus infection. We conducted a study on 51 sick children during an exacerbation period in a multidisciplinary TMA clinic, aged from 7 to 18 years. The control group consisted of 33 practically healthy children of the same age. The distribution of children according to the severity of BA showed a predominance of moderate-severe persistent form of BA 80.4% (n=41), mild persistent BA was detected in 14.5% (n=7±0.4), severe form in 5.1% (n=2±0.6). Thus, 76.8% of children in the main group experienced an exacerbation of asthma during coronavirus infection.

At the beginning of the pandemic, somatic pathology, including AD, was considered a risk factor for severe coronavirus infection. Currently, it has been verified that the main receptor for the virus to enter the cell is ACE2. The ACE2 receptor is widely present on ciliated cells of the respiratory tract [7,8] It has been found that the expression of ACE2 in the nasal epithelium of children with allergic sensitization and allergic asthma is reduced [9]

Prospective follow-up of patients has proven that the use of ICS is a predictor of reduced susceptibility to SARS-CoV-2 infection and the incidence of COVID-19 [10]

At the beginning of the pandemic, somatic pathology, including AD, was considered a risk factor for a severe course of coronavirus infection. However, several studies have shown that children with AD have a relatively more favorable course of COVID-19 [1,1]. The question of the impact of coronavirus infection on the clinical course of AD is still controversial. According to some authors, coronavirus infection in children with AD has an obliterated clinic and a favorable course [2,4], while others consider AD to be a severe background condition. which aggravates the course of coronavirus infection [1].

MATERIALS AND METHODS OF RESEARCH

We conducted a study in 51 patients with an exacerbation period in the multidisciplinary TMA clinic, aged 7 to 18 years. The control group consisted of 33 healthy children of the same age.

To study the impact of coronavirus infection on the clinical course of bronchial asthma, we studied the medical histories and outpatient records of all the examined children.

Thus, we have two groups:

Group 1 – 51 children with AD aged 7-18 years who had COVID-19;

Group 2 – 35 children aged 7 to 18 years without AD who had COVID-19.

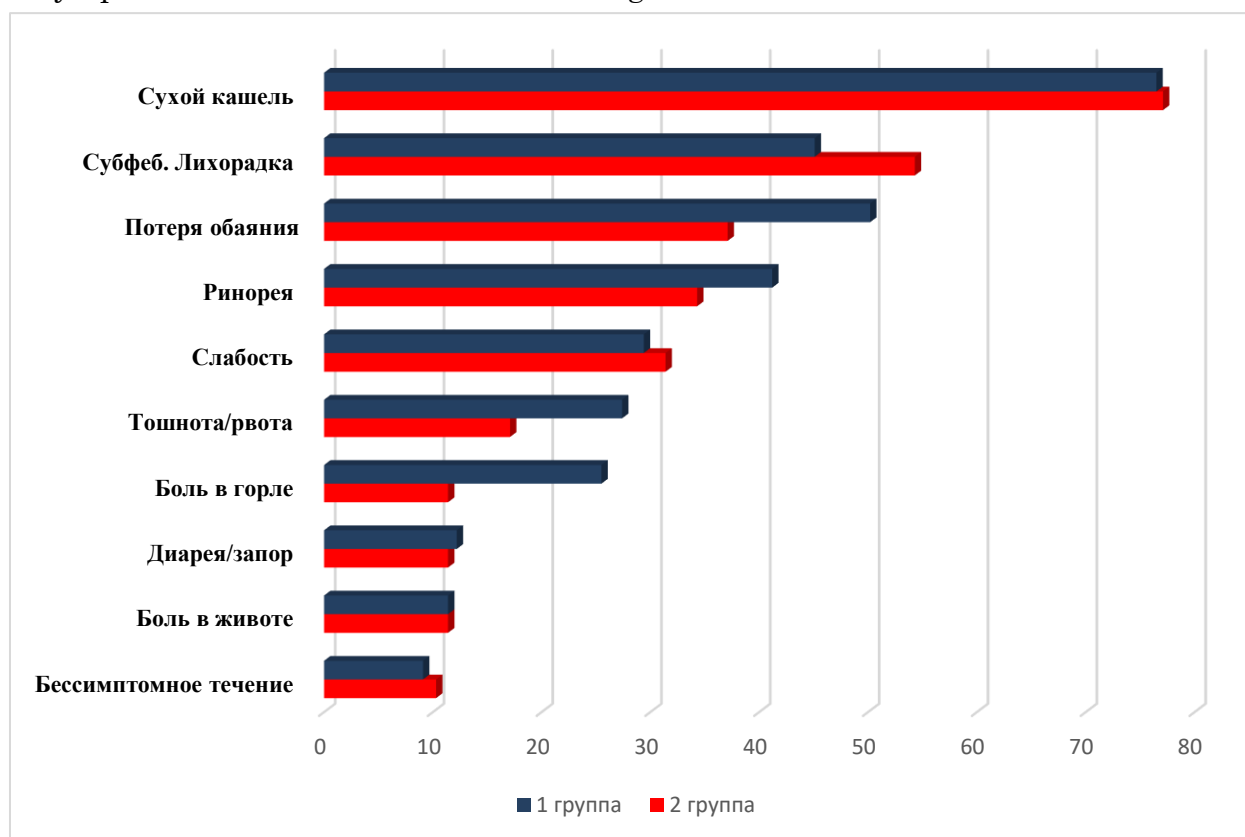
RESULTS AND DISCUSSION

The distribution of children by the severity of AD showed a predominance of moderately severe persistent AD in 80.4% (n=41), mild persistent AD in 14.5% (n=7±0.4), and severe in 5.1% (n=2±0.6).

From the anamnestic data, the study of the premorbid background of the examined children showed the predominance of anemia in 84.3% (n=43) of children. Among 45.1% (n=23) of children, chronic rhinopharyngitis and nasopharyngitis were detected; 41.2% (n=21) of children have chronic pharyngitis; Adenoid vegetation occurred in 35.3% (n=18) of children; 27.4% (n=14) of children had nasal septum sparking and atopic dermatitis; allergic rhinitis was found in 25.5% (n=13) of children.

According to the case histories, children of group 1 had a poor clinical picture of COVID-19: dry obsessive cough – 39 (76.5%); low-grade fever – 23 (45.1%); loss of charm – 25±0.6 (50.2%); rhinorrhea – 21 (41.2%); weakness – 15 (29.4%); nausea/vomiting – 14 (27.4%); sore throat – 13 (25.5%); diarrhea/constipation – 6±0.2 (12.2%); abdominal pain - 5±0.8 (11.4%); asymptomatic course – 4±0.6 (9.1%).

In children of the second group: dry obsessive cough – 27 (77.1%); low-grade fever – 19 (54.3%); loss of charm – 13 (37.1%); rhinorrhea – 12 (34.3%); weakness – 11 (31.4%); nausea/vomiting – 6 (17.1%); sore throat – 4 (11.4%); diarrhoea/constipation – 4 (11.4%); abdominal pain - 4 (11.4%); asymptomatic course – 3±0.6 (10.3%). (Figure 1).



Риснуок 1. Clinical symptoms in sick and healthy children with COVID-19 incidence (%).

As can be seen from the data (Fig. 1), the main differences in the clinical manifestations of coronavirus infection in the examined children were the predominance of such symptoms as

loss of smell, nausea/vomiting and sore throat in the children of the main group. The rest of the symptoms were the same in both children with and without AD.

The study of laboratory data of the children of the main group revealed mild anemia (92.3%), a slight shift of the leukocyte formula to the left. 89.2% of children had low levels of magnesium in the peripheral blood.

Children in the control group were also found to have mild anemia (88.2%) and a slight shift of the leukocyte count to the left. Peripheral blood magnesium levels were within the normal range.

Instrumental methods of study did not determine the distinctive features in the functions of external respiration.

FINDINGS

Thus, 76.8% of children in the main group had an exacerbation of AD during coronavirus infection, but it is noteworthy that children who regularly took medications for AD, even during the exacerbation, did not experience a deterioration of their condition due to the addition of COVID-19.

In children in the control group, COVID-19 was mostly mild. Sometimes parents did not even notice that they were infected with coronavirus, i.e. they thought it was a manifestation of SARS.

Our studies were comparable with the data of other authors, who also noted a mild course of coronavirus infection in children with AD [6]. According to Chinese scientists, children with AD who are hospitalized with COVID-19 accounted for 0.9%, which is significantly lower than in the United States (6.4%) [5].

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