

CAUSES OF UNCONTROLLED BRONCHIAL ASTHMA AMONG CHILDREN IN KHARKIV REGION

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Abstract. Bronchial asthma (BA) is one of the most common chronic diseases, according to WHO statistics in 2018, there were about 334 million patients worldwide, and 14% of them were children. BA among children reduces the quality of life, is one of the main reasons for skipping school days, can be a cause of disability and sometimes death. The aim of the work was to improve the quality of life of children with asthma by improving disease control. 50 children with asthma were examined. The study included a study of complaints of the patient and his parents, medical history, the results of clinical and laboratory and instrumental examinations. The main reason for the lack of control among children with asthma is the violation of the algorithms of basic therapy.

Key words: bronchial asthma, children, diagnostics, basic therapy.

The problem of bronchial asthma (BA) is extremely relevant primarily due to the epidemiological aspect. The disease often continues from early childhood to a fowl age. BA is one of the most common chronic diseases, according to WHO statistics in 2018, there were about 334 million patients worldwide, and 14% of them were children [1]. The rate of bronchial asthma varies from country to country and ranges from 1% to 18%. Among children, the percentage ranges from 5-10% and depends on gender and age. According to WHO, by 2025 the number of asthmatics will increase by another 100 million, with an increase in the number of severe forms, and in the second half of the 21 st century, every second child will suffer from asthma [2].

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WHO estimates that 383,000 deaths due to asthma were reported in 2018. The mortality rate among asthmatics in Ukraine is one of the highest in Europe: 0.7 per 100,000 population aged 5 to 34 [3]. The mortality rate among children is 4 times lower than for adults. Asthma is an important economic problem. Annual additional medical expense for asthma per person in the United States in 2017 was \$ 3,266.

The biggest impact on quality of life and the biggest economic burden is uncontrolled asthma.

Total 20-year direct costs associated with uncontrolled asthma are estimated to be \$ 300.6 billion. When indirect costs are added, total economic burden will be \$ 963.5 billion [4].

Thus, asthma is an urgent epidemiological, social, economic and scientific-practical problem of pediatrics.

Asthma control can be effectively achieved through cooperation between a patient and a doctor, therefore, modern algorithms for treatment and prevention of asthma allow these patients to have high "quality of life" – to go to school, play sports, succeed in social sphere.

As it is known, many famous people suffered from asthma – US Presidents Bill Clinton, John F. Kennedy, Teodor Roosevelt, among modern stars – Sharon Stone, Jessica Alba and Sophia Rotaru have a history of asthma, but despite this they succeeded in their creative life, and it is possible only through control of the disease.

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The objective is to determine the main causes of uncontrolled asthma among children in Kharkiv region.

Materials and methods: The survey was conducted on the basis of the Regional Allergological Center (head of the center – Sorokolat O. V.) and the Regional Center for Pediatric Immunology (head of the center – Timokhina N. I.) Regional Clinical Children Hospital № 1 (General Director – Piontkovskaya O. V.).

Criteria for inclusion in the study:

- diagnosis of asthma, which is established on the basis of clinical and paraclinical signs;
- patients aged 5 to 17 years 11 months 29 days;
- lack of asthma control;
- informed consent of the patient and his parents.

Criteria for exclusion from the study:

- presence of other diseases of the broncho-pulmonary system (except asthma) or abnormalities in laboratory parameters that may affect the study;
- complications of asthma;
- the presence of congenital malformations or other chronic somatic pathology;
- lack of compliance with the patient and / or his parents.

50 children with asthma were examined. The study included a study of complaints of the patient and his parents, medical history, the results of clinical and laboratory and instrumental examinations, which are included in the list of diagnostic tests according to the unified clinical protocol of primary, secondary (specialized) medical care "Bronchial asthma among children" from 08. 10. 2013 № 868).

Control levels were determined according to the recommendations of the Global Initiative for Asthma (GINA, 2016).

Table 1. Levels of control of bronchial asthma (children from 5 years)

Control of asthma symptoms

In the past 4 weeks, has the patient had		Well controlled	Partly controlled	Uncontrolled
Daytime symptoms more than twice a week?	Yes <input type="checkbox"/> No <input type="checkbox"/>	None of these	1-2 of these	3-4 of these
Any night waking due to asthma?	Yes <input type="checkbox"/> No <input type="checkbox"/>			
Reliever needed for symptoms more than twice a week?	Yes <input type="checkbox"/> No <input type="checkbox"/>			
Any activity limitation due to asthma?	Yes <input type="checkbox"/> No <input type="checkbox"/>			

To identify the reasons for the lack of disease control, a survey among children and parents with the most likely reasons for refusal from therapy was conducted. The research was conducted in compliance with human rights according to the legislation in force in Ukraine, meets international ethical requirements.

The results were processed by non-parametric statistics using Microsoft Exel and IBM SPSS Statistics.

Results: 38 (76%) boys and 12 (24%) girls took part in the study. Among the patients, children of primary school age predominated 32 (64%) children, 12 (24%) patients were of senior school age, and 6 (12%) children aged under 7 years. Among examined 17 (34%) children were admitted in the period of exacerbation

(26% – mild and 8% moderate severity level) and 33 (66%) children at the time of examination were in incomplete remission, had complaints about the respiratory system.

When assessing control, partial control was noted among 39 (78%) children, lack of control – among 11 (22%). Given the small number of children without control of the disease, statistical data processing was performed in general for all patients.

Symptoms of lack of control were noted in the sequence: daily symptoms more often than 2 times a week – among all patients (n = 50); the need to use the drug of prompt action more than 2 times a week (n = 29); restriction of activity due to asthma (n = 21); night awakenings due to asthma (n = 18). Thus, the most sensitive sign of lack of control is daytime symptoms. It was also noted that the Kharkiv region is not characterized by abuse of B2-agonists, according to statistics, there have been no deaths among adolescents caused by overdose for more than 10 years.

It was found that the symptoms of lack of control are more common among children living in rural areas – 65% of respondents, boys 70%, and patients of primary school age 70%.

A survey on basic therapy found that 14 (28%) children do not receive basic therapy at all; 19 (38%) children prematurely discontinue basic therapy because their parents decide when to stop taking the medication; 17 (66%) children do not seek medical help in time. To find out the reasons for non-compliance with basic therapy, questions were used with the most probable reasons for refusal of therapy (formed from the parents' answers). They do not understand that asthma is a chronic disease and aim at a complete cure for a child – 37 parents; afraid of hormonal drugs and their side effects – 41 parents of patients; believe that the duration of the course can not be more than 3 months. – 21 respondents; want to "adapt" therapy to the child's condition – take less medication when the child feels satisfingly – 32 parents; believe that they know their child well and can prevent symptoms at the onset of exacerbation – 43 respondents; increase the dose of symptomatic drugs, regardless of the doctor's recommendations – 28 patients; 9 parents do not want to use basic therapy for religious reasons, 11 – can not spend money on the treatment of the child, due to difficult financial situation; 3 respondents have distrust of doctors, use the methods of folk medicine.

The data obtained coincide with the research of other scientists – for example, in 2018 in Turkey a study was conducted to assess adherence to basic therapy.

500 parents were interviewed and found that 76% of parents constantly give medication to their children, but 58% of respondents are afraid to use hormonal drugs, 58% of parents add to the basic therapy methods of folk medicine, 28% of parents believe that basic therapy drugs are addictive and 24% of respondents self-cancel or change the amount of therapy.

Studies by scientists from the Netherlands also confirm the urgency of the problem of asthma control – a survey of 408 children aged 4-18 years revealed an uncontrolled course among 39% of respondents. Predictors associated with uncontrolled asthma were a family history of asthma (odds ratio [OR] 2.08), and recurrent upper and lower respiratory tract infections in the past year (OR 2.40 and OR 2.00 respectively) [5].

Regarding the study of the reasons for lack of control, the work of Wijitra Krobtrakulchai and others is of interest (2013), they analyzed a number of clinical and paraclinical features among children with controlled (n = 32), partially controlled (n = 46) and uncontrolled (n = 47) asthma [6]. Particular attention was paid to determining the level of vitamin D in the serum and its effect on disease control. It has been established that the level of vitamin D, the patient's age, the onset of the disease, the presence of obesity, comorbid conditions (atopic dermatitis, allergic conjunctivitis, food allergies), the level of blood eosinophils, hereditary allergies do not affect the level of control. There is only one probable difference – gender; boys more often had a controlled course.

This study reaffirms the importance of basic therapy as a key condition for improving asthma control and prognosis.

On the other hand, even with adequate basic therapy with inhaled steroids among 30% of adult patients there is an uncontrolled course of the disease, which indicates the phenotypic diversity of asthma and the difficulty of choosing therapeutic strategies [7].

Conclusions: The main reason for the lack of control among children with asthma in Kharkiv region is the violation of the algorithms of basic therapy. Explanatory work with patients and their parents is necessary to increase the effectiveness of asthma control among children.

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