

**ASSESSMENT OF RISK FACTORS FOR THE DEVELOPMENT OF  
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[shohsanam8880@gmail.com](mailto:shohsanam8880@gmail.com)**ABSTRACT**

The aim of the study was to conduct a retrospective analysis and assessment of their risk factors for the development of broncho-obstructive syndrome in children. A retrospective analysis of the case histories of children for the period 2015-2019, who were hospitalized in the pulmonology department of the Republican Specialized Scientific and Practical Medical Center for Pediatrics of the Ministry of Health of the Republic of Uzbekistan, was carried out. The conducted studies have shown that when assessing risk factors for the development of BOS, such as perinatal encephalopathy, early artificial feeding, frequent ARI, prematurity, aggravated allergic history, hereditary and congenital pathology of the bronchopulmonary system, which dictates the need for prevention of diseases occurring with broncho-obstructive syndrome.

**KEYWORDS:** children, broncho-obstructive bronchitis, risk factors, retrospective analysis.**INTRODUCTION**

Respiratory diseases are the most common group of diseases among the child population and occupy the first place in the structure of the general morbidity of children. The relevance of chronic bronchopulmonary processes, disability and mortality remains [1,2]. Respiratory diseases that occur with broncho-obstructive syndrome are among the common ones, the significance of this pathology is steadily increasing, which is associated with an increase in the number of frequently ill children, an increase in the survival rate of newborns with severe respiratory tract lesions, an increase in the number of children with an atonic constitution, and exposure to adverse environmental factors [3]. The most common group of diseases accompanied by bronchial obstruction is acute obstructive bronchitis and bronchial asthma [3]. The prevalence of bronchial asthma reaches 30% in various populations. In recent years, all over the world, including Russia, there has been a tendency towards an increase in the incidence of bronchial

asthma in children and its more severe course. It is believed that bronchial asthma accounts for 1/3 of all chronic nonspecific lung diseases in children [4]. According to some authors, acute obstructive bronchitis occurs in 25% of children hospitalized for acute respiratory viral infection [1,5]. Identification and treatment of biofeedback is a key moment in the diagnostic and therapeutic algorithms of these diseases [6,7]. BOS in early childhood against the background of acute respiratory infection of the lower respiratory tract is detected in 5–40% of cases, with a burdened allergic history and in frequently ill children (cases of acute respiratory infection more than 6 times during the year) - in 30–40% [8].

Thus, the growth trend of acute respiratory diseases (ARI) in children and their role in the development of bronchial obstruction, the high risk of recurrence of obstructive bronchitis and the possibility of bronchial asthma, a variety of immune disorders in this pathology determine the relevance of studying the factors and mechanisms of formation of bronchial obstructive syndrome in children with infections. respiratory tract.

Purpose of the study. Conduct a retrospective analysis and assess the risk factors for the development of broncho-obstructive syndrome in children.

**MATERIALS AND METHODS**

A retrospective analysis of the case histories of children for the period 2015-2019, who were hospitalized in the Department of Pulmonology of the Republican Specialized Scientific and Practical Medical Center for Pediatrics of the Ministry of Health of the Republic of Uzbekistan and Allergology, as well as in the City Children's Hospital of Andijan, Andijan District Multidisciplinary Central Polyclinic, was carried out. Based on a retrospective analysis of 6965 case histories of children aged 1 to 18 years with bronchopulmonary pathology, of which 1208 (17%) children with an established diagnosis of BOS, 1208 children were divided. – Acute obstructive bronchitis (AOB) – 72 (6%) children; - RB with BOS - 170 (14%) children. The assessment of risk factors for the development of biofeedback was carried out using statistical methods in an epidemiological analysis.

**RESULTS AND DISCUSSION**

To assess the risk factors for the development of the disease, studies were conducted that included a thorough analysis of complaints, anamnestic data of patients, general examination data, results of physical examination methods, general clinical laboratory, immunological, microbiological and instrumental methods of research using standard methods. To diagnose the syndromic features of the disease, data from paraclinical research methods were used: a complete blood count, urine, feces, X-ray studies of the chest organs, pulse oximetry data and expert opinions. Surveys were conducted of children in the age group from 1 to 15 years (Table 1). The distribution of children by age showed that community-acquired pneumonia with the obstructive syndrome is more common at 1-3 years 800 (83%), in children aged 4-6 125 (13%) were registered, 7-11 years 32 (3%), while in children aged 12-15 years was 9 (1%).

**Table 1**  
**Distribution of examined children by groups and age, %**

Age	AOBn=72		RBwithBOSn=170	
	abs	%	abs	%
1-3 years	32	44	41	24
4-6 years old	17	24	52	30,5
7-11 years old	18	25	52	30,5
12-15 years old	6	7	25	15
Total	72	100	170	100

As can be seen from Table 2, the distribution of children by sex and age revealed that BOS, in the comparison group, the diagnosis of acute obstructive bronchitis (AOB) without symptoms of bronchial obstruction was stated in 32 (44%) children (group 2), while in group 3 - RB with biofeedback 41 (23%).

**Table 2**  
**Distribution of examined patients by sex and age, %**

Age	AOBn=72					RBwithBOSn=170				
	male		female			male		female		
	s	ab	%	s	ab	%	abs	%	abs	%
1-3 years	6	1	2	6	1	2	21	12	20	1
4-6 years old	1	1	1	6	6	8	27	16	25	5
7-11 years old		9	1		8	1	27	16	25	5
12-18 years old		2	3		4	6	8	5	17	1
Total	8	3	7	4	3	7	170	49	187	5

In the group of children with AOB, there were 72 (53%) boys and 34 (47%) girls, i.e. there was no significant difference in the gender of the patients. As shown in the table, among all examined patients, children under 1 year of age had OOB more often (44%) than older children (4-6 years - 23%; 7-11 years - 24%, 12-18 years - 9 %).

Repeated cases of ARI (6 times or more) during the year were noted in 35 (48%) children with AOB, and in children with RB with BOS in 88 (52%) (Table 3), in most children with AOB 52( 72%) were diagnosed with deficient conditions and aggravated premorbid background: 31 (43%) and 95 (56%) children were early transferred to artificial feeding, 40 had perinatal CNS damage, 25 (35%) and 82 48%) had rickets , 70 (97%) and 59 (82%) and 156 (92%) have anemia. (56%) history

Most of the children were born full-term - 65 (90%) and had a body weight of more than 2500 grams. Only 7 (9%) children were premature, and 17 (24%) children had AOB, 15 (9%) children had RB with BOS. Half of the examined children with AOB had a violation of physical development. At the same time, high and disharmonious physical development was more common (36%). The frequency of manifestations of various anamnestic data in sick children with AOB was shown. A retrospective analysis of case histories showed that the development of acute respiratory failure (ARF) by the type of bronchial obstruction in children with AOB depended on a combination of many factors, age differences, the presence of concomitant diseases, their combination, risk factors, etc.

These data clearly indicate a significant frequency of perinatal and intranatal pathological symptoms in children as risk factors influencing the development of diseases. As follows from Table 3, factor analysis showed that the highest risk of developing RB with biofeedback is possible in the presence of pregnancy complications (RR=1.05; OR=5.08), past diseases during pregnancy (RR=1.6; OR=4.2) and artificial feeding of the child (RR=1.7; OR=2.6).

**Table 3**  
**Factor analysis of the risk of developing BA in the examined children, %**

Risk factors	RBwithBOSn =65		AOB n=60		P	OR	RR
	abs	%	a	%			
	bs						

Born from: I pregnant	32	9,2	4	1	3	4	>0,	0,90	0,9
II-III pregnancy	25	8,5	3	4	3	4	>0,	0,54	0,8
IV or more pregnant.	8	2,3	1	0	1	1	>0,	0,70	0,8
Born from: I birth	35	3,9	5	3	3	4	>0,	0,34	0,5
II-III birth	25	8,5	3	4	3	4	<0,	0,71	0,4
IV or more births	5	7	7,		8	1	>0,	0,55	1,3
Complications of the current pregnancy: toxicosis of the I-II half	57	7,7	8	5	3	4	>0,	5,08	1,0
Anemia I-II degree	54	3,1	8	1	5	8	>0,	0,86	0,9
Maternal illnesses during pregnancy:	52	0,0	8	9	2	3	>0,	4,27	1,6
Pathological course of childbirth	26	0,0	4	7	1	2	<0,	1,68	1,4
Born: premature	4	2	6,	1	1	1	<0,	0,34	0,7
in asphyxia	14	1,5	2	8	1	3	<0,	0,64	0,7
Nutrition up to a year:	28	6,6	4	0	4	6	<0,	0,54	0,7
- natural	14	2,3	2		6	1	>0,	2,64	1,7
- artificial	23	5,3	3	4	1	2	>0,	1,79	1,5

In the formation of RB with biofeedback, great importance is attached to hereditary predisposition. In this regard, we studied in detail the anamnesis of 125 families of the groups we observed. The identified forms of allergic diseases are summarized in Table 4. Hereditary burden for allergic diseases was registered 2 times more often in patients with RB with biofeedback.

More than 59.0% of RB children with BOS and 49.9% of children with AOB and only 34% of children with primary OB had indications of allergy in one of the parents. Allergic diseases in the mother were observed in 33% of children with AOB, in 43% of mothers of RB with BOS and in 79% of mothers, allergic diseases of the father were found in 16% of children, and 19%.

In general, it was possible to identify a hereditary burden of allergic diseases in the observed groups, and more often on the maternal side (27% and 41%, respectively) than on the father's side (17%, 23% and 40%, respectively). Some children had a bilateral hereditary burden of allergic diseases (9% and 32%, respectively). The fact of smoking of parents with a child was also revealed (36.6%, 63%).

**Table 4**  
**The role of hereditary burden for allergic diseases in examined children, %**

Analyzed indicators	AOB n=60	RBwithBOSn=65	P	OR	RR
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	abs.	%	abs.	%				
	25	33	44	79	>0,01	3	2,93 5	1,62
Allergic diseases in the mother	12	16	31	19	>0,01	7	3,64 5	2,38
Allergic diseases of the father	7	9	18	32	>0,01		1,22	2,33
bilateral	20	27	31	41	>0,01		2,65	1,03
burdenedness	13	17	30	40	>0,01		1,78	1,25
Along the line of matter	22	36	35	63	>0,01	5	2,01 9	1,46

Factor analysis of hereditary burden showed that the highest risk of developing asthma is possible in the presence of allergic diseases of the parents (RR=2.3; OR=3.6) and smoking parents (RR=1.4; OR=2.05).

The severity of the examined patients is significantly affected by the unfavourable premorbid background and comorbidities (Table 5). Analyzing this table, it can be stated that in all three observation groups, such background conditions as anemia of I-II degree, residual effects of rickets and allergic diathesis were most common. In the group of patients with OB in children, the above conditions were of greater importance. Of the concomitant pathology, diseases of the ENT organs were found in 14 (23.3%) patients with OB, in 20 (33.3%) patients with RB with biofeedback. In patients with BA, 54 (83.1%) of the examined patients had diseases of the ENT organs.

**Table 5**  
**Characteristics of the background condition and comorbidity in the examined patients**

Background diseases	AOB n=60		RBwithBOSn=65		P	P1
	abs.	%	abs.	%		
Anemia I-II	51	85,0	48	73,8	>0,01	>0,01
Residual effects of rickets	28	46,6	30	46,1	>0,01	>0,01
Atopic dermatitis	20	33,3	46	70,7	>0,01	>0,01
Overweight	16	26,6	10	15,4	>0,01	>0,01
Protein-energy malnutrition	19	31,6	18	27,6	>0,01	>0,01
Diseases of ENT organs	20	33,3	54	83,1	>0,01	>0,01

**Note: P - reliability of differences in indicators between groups I and II of patients;**

Factor analysis of the background state and comorbidity showed that the highest risk of developing RB with biofeedback is possible in the presence of residual effects of rickets (RR=1.8; OR=2.6), atopic dermatitis (RR=2.04; OR=8, 6), ENT diseases (RR=1.5; OR=2.9) (Table 6.)

**Table 6**

Factor analysis of the background condition and comorbidities in the examined children

Background diseases	AOB n=60		RBwithBOSn=65		P	R	O	RR
	a bs.	%	abs.	%				
Anemia I-II	4	80,0	48	73,	>0, 01	1, 03	0,2 5	
Residual effects of rickets	1	25,0	30	46,	>0, 01	2, 571	1,8 46	
Atopic dermatitis	6	10,0	46	70,	>0, 01	8, 65	2,0 4	
Overweight	1	21,6	20	7,7	>0, 01	1, 6	1,4 20	
Protein-energy nutrition	1	18,3	18	27,	>0, 01	1, 706	1,5	
Diseases of ENT organs	1	23,3	54	83,	>0, 01	2, 9	1,5	

Delay in physical development was observed in 27.6% of patients with RB with BOS, cardiovascular diseases were detected in 64.6% of the examined patients with RB with BOS.

Thus, the presented data once again confirm that children with varying degrees of severity of background conditions and comorbidities are a risk group for the development of diseases.

According to the data obtained, the physical symptoms of bronchial obstruction in AOB were observed in all children. Frequent and productive cough occurred in 36.4% of children, rare, more often in the morning - in 63.5% of children, which is associated with insufficient mucociliary clearance in this age period. More informative in the diagnostic and differential diagnostic terms were organ-specific symptoms and X-ray data. Thus, a dry cough at the onset of the disease, with a further transition to a wet one, was noted in all patients with OOB and RB with BOS. Wet cough with discharge of viscous, mucopurulent sputum or vomiting was noted in the inpatient chart in 45 (63.0%) patients with AOB and in 110 (65.2%) patients with RB with biofeedback. Noisy wheezing and expiratory dyspnea as clear signs of bronchial obstruction of the lower respiratory tract (in 67-93.1% and 154-90.6%, respectively) were detected only in patients with AOB, in contrast to children in the control group with RB with BOS, in whom this symptomatology was not recorded in the medical history.

**CONCLUSION**

The results of clinical observations of children, patients in all study groups showed that in OB, regardless of nasology, there is a longer manifestation of dyspnea, oral wheezing, wet cough and wet rales in the lungs. In the presence of bronchial obstruction, the symptoms of intoxication, respiratory failure are more pronounced, which is manifested by clinical signs of the disease for a longer time. Risk factors for the development of BOS, such as perinatal encephalopathy, early artificial feeding, frequent acute respiratory infections, prematurity, aggravated allergic history, hereditary and congenital pathology of the bronchopulmonary system, which dictate the need for prevention of diseases occurring with broncho-obstructive syndrome, were assessed.

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