



Klinical Characteristics of Arterial Hypertension in Combination with Bronchial Asthma

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Annotation: AH in the examined patients with BA is an independent disease of EAH, the severity of its course is determined by the stage of the disease, the degree of increase in blood pressure and risk factors. EAH and BA have a mutually aggravating effect. Hereditary predisposition is recognized as an important risk factor for hypertension. In the group of patients with combined pathology, heredity for BA was burdened in 28.76%, for EAH in 64.38% of cases. In the control groups of patients, heredity was burdened in 47.82% of cases for AH and in 30.43% of cases for BA. Overweight and obesity are risk factors for developing hypertension. In patients with combined pathology, obesity occurs much more often (69.85%) than in the group of patients with AH (43.47%) and BA (34.78%).

Key words: bronchial asthma, arterial hypertension, overweight, obesity, comorbidity.

Relevance.

In recent years, there has been a steady increase in the incidence of BA, the appearance of its severe forms is increasingly noted [8, 13]. The growing incidence of asthma is combined with some features of its course, complications and outcomes.

In different countries of the world, bronchial asthma is common from 1 to 18%. Bronchial asthma reduces the average life expectancy in men by 6.6%, in women by 13.5% and is the cause of disability in 1.5% of patients with bronchial asthma [1].

Despite the decrease in the number of hospitalizations and deaths associated with asthma, this disease still causes high damage to society and the health care system due to production losses, manifestations of trouble in the family, and a decrease in the quality of life of patients [2].

The number of patients in whom the first manifestations of the disease occurred after 40-50 years has increased [11, 12, 14]. Therefore, BA has become more often combined with diseases of the cardiovascular system, which, in turn, have become much “younger” [2,10,13]. In addition, the structure of chronic pathology is currently characterized not only by an increase in the spread of individual nosologies, but also by an increase in their combined course, which mutually aggravates the course of diseases and creates difficulties in treatment [5,6,7].

Modern medicine is losing its mononosological character, acquiring the status of comorbidity [3,13]. The presence of comorbidity increases the number of complications, requires non-standard approaches to treatment and worsens the prognosis [4]. In addition, comorbidity contributes to polypharmacy, which leads to the development of adverse drug events and iatrogenic pathology [6].

The possibility of combining BA and AH was first pointed out in the domestic literature by B.G. Kushelevsky and T.G. Raneva in 1961. Further studies have shown that the prevalence of arterial hypertension in patients with bronchial obstruction averages 34.3% [9].

Elevated blood pressure is quite common in patients with bronchial asthma and may be the result of chronic hypoxia, treatment with β -agonists and glucocorticosteroids, and other causes. There is no



consensus in the literature about the causes of changes in blood pressure in patients with bronchial obstruction [10]. On the other hand, an exacerbation of bronchial asthma provokes destabilization of hemodynamics in such patients, which leads to an increase in blood pressure and entails a deterioration in well-being.

Purpose of the study. To study the features of the clinical characteristics of patients with bronchial asthma combined with arterial hypertension.

Material and research methods

The study was conducted on the basis of the regional diversified medical center in Bukhara since January 2018. to February 2020. The study included 119 patients who were hospitalized in the pulmonology and therapeutic departments. All patients underwent a conventional clinical study: collection of anamnesis; inspection; physical examination; laboratory research methods (general blood count, general urine analysis), electrocardiography.

Overweight, according to the recommendations of the International Group on Obesity (1997), is fixed at the indicators of the Quetelet index, calculated by the formula: weight (kg) / height (m)², ≥ 25 , and IC levels ≥ 30 were taken as obesity.

The degree of arterial hypertension was determined on the basis of the classification proposed in the EOG-ESC European recommendations, 2018: I degree (mild) – SBP- 140-159 mm Hg, DBP 90-99 mm Hg. Art., II degree (moderate) - SBP -160-179 mm Hg. Art., DBP - 100-109 mm Hg. Art. The duration of AH ranged from 1 to 15 years and averaged 4.8 ± 1.1 years. A total of 73 patients who were on inpatient treatment in the pulmonology department were examined.

Patients were hospitalized due to exacerbation of BA. The mean age of the patients was 52.95 ± 3.02 years (from 39 to 68 years). Among the examined 19 men (26.0%), 54 women (73.97%).

Results and discussions

The patients were divided according to the form of bronchial asthma, taking into account the etiopathogenesis of the disease: 13 patients (17.80%) were diagnosed with an allergic form of asthma, 4 (5.47%) had a non-allergic form, and the majority had a mixed form - 56 patients (76.71%) , and 4 of them had a combination of allergic and aspirin asthma, and 52 - allergic and endogenous forms.

Severity was determined based on the recommendations of the Global Strategy for the Treatment and Prevention of Bronchial Asthma (2011). The duration of BA varied from 1 to 20 years and averaged 5.75 ± 2.8 years.

All patients had concomitant arterial hypertension, in 23 (31.50%) of II-degree, in the rest - 50 (68.49%) of I-degree. The distribution of patients depending on the time of occurrence of the first symptoms of BA and AH are presented in Table 1.

Table 1 Distribution of patients according to the duration of AH and BA in their combined course.

Criterion	Number of patients		Average age at onset of AD	Average age of onset of hypertension
	abs.	%	M±m	M±m
AH developed before AD manifestation	38	52,05	$52,58 \pm 1,79$	$48,33 \pm 2,9$
Manifestation of hypertension and asthma at the same time	17	23,28	$48,2 \pm 2,1$	$48,2 \pm 2,1$
BA developed before AH	18	24,65	$41 \pm 3,17$	$50 \pm 1 \text{Д}$



The table shows that in a larger number of patients -38 people. (52.05%) the first symptoms of AH occurred before the manifestation of BA, and 18 people (24.65%) noted the simultaneous appearance of symptoms of BA and AH, thus, according to the time criterion, it can be excluded in most patients with a combined course of BA and AG.

Patients with established forms of symptomatic arterial hypertension, pulmonary hypertension, severe bronchial asthma, hormone-dependent bronchial asthma, chronic cor pulmonale, hypertension above II degree, circulatory failure, impaired glucose tolerance were excluded from the study.

To assess the clinical features of the combined course of BA and AH, two control groups of patients were examined. The first consisted of 23 patients suffering from essential arterial hypertension (EAH), the second - 23 patients with BA and normal blood pressure.

The average age of patients suffering from EAH was 56.8 ± 3.64 years (from 47 to 69 years), 7 men (30.43%), 16 women (69.56%). The EAH duration averaged 6.75 ± 2.67 years. Among the patients of the first group, 5 (21.73%) with AH of the II degree, the rest - 18 (78.26%) with AH of the I degree. The criterion for exclusion from the group - diseases of the respiratory system.

The mean age of patients with BA was 51.61 ± 1.98 years (from 39 to 69 years), 8 men (34.78%), 15 women (65.21%). Duration of BA course was 7.18 ± 2.3 years. 14 people (17.29%) - suffered from an allergic form of BA, 3 people (13.04%) - non-allergic, 36 (69.56%) - had a mixed form of BA. 3 people (13.04%) had mild persistent BA, 20 people (86.95%) had moderate BA. All had a normal level of blood pressure, in the anamnesis there were no indications of episodes of increased blood pressure.

Thus, the duration of the anamnesis of BA and AH is approximately the same in the study group of patients and in the control groups. In addition, the distribution of patients by sex, age, form of the disease and severity in all groups was close.

Next, the comparative clinical and functional characteristics of the studied groups of patients were studied (Table 2).

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Table 2 Clinical and functional characteristics of the studied groups.

Index		BA+AG	BA	AG
number of patients, people		73	23	23
gender, number of patients in %	Men	28,76	34,78	30,43
	women	71,23	65,21	69,56
Average age, years		$52,95 \pm 3,02$	$51,61 \pm 1,98$	$56,8 \pm 3,64$
Average duration of hypertension, years		$4,8 \pm 1,1$	-	$6,75 \pm 2,67$
Average duration of BA, years		$5,75 \pm 2,8$	$7,18 \pm 2,3$	
Form of asthma, number of patients in %	allergic	17,80	21,7	
	non-allergic	5,47	8,69	
	mixed	76,71	69,56	
The severity of BA number of patients in %	mild degree	10,06	13,04	
	average	84,93	86,95	
Degree of hypertension number of patients in %	1 degree	68,49	-	73,91
	2 degree	31,50	-	26,08

When studying the features of the anamnesis in patients with BA in combination with hypertension, compared with patients with BA and normal blood pressure, there was a tendency to more pronounced tachycardia during asthma attacks.



Allergic history was aggravated in the examined patients in 27.39% of cases with drug allergy in the group with comorbidity and 21.73% of cases in the group with BA, in 39.98% of cases, an allergic examination revealed sensitization to household allergens in patients with BA and AH, in 30.43% of cases in the BA group, in 28.76% of cases to pollen allergens, in 5.47% of cases to epidermal allergens in patients with BA and AH, in patients with BA 26.08% and 4, 34% respectively.

Thus, there was no significant difference in the allergic anamnesis between the studied and control group of patients.

In the development of both AH and BA, heredity is of great importance. In the group of patients with combined pathology, heredity for BA was burdened in 28.76%, for AH in 64.38% of cases. In the control groups of patients, heredity was burdened in 47.82% of cases for AH and in 30.43% of cases for BA.

Among the diseases suffered by all patients, acute respiratory viral infections, tonsillitis, bronchitis were indicated, comorbidities included: osteochondrosis of the spine (28 people), peptic ulcer of the stomach and 12 duodenal ulcer (7 people), uterine fibroids (19 people), coronary artery disease (15 people). All diseases were in remission.

Since overweight is of great importance for the development of AH, the body mass index was calculated in the group with comorbidity, in patients with BA, with EAH and compared with each other (Table 3).

Table 3 Comparison of body mass index in patients with comorbidity and in the group with EAH and BA.

Groups	Norm	Overweight	Obesity		
			I-degree	II- degree	III - degree
BA+AG	6,84%	23,28%	50,68%	19,17%	-
AG	8,69%	47,82%	39,13%	4,34%	
BA	43,47%	21,73%	34,78%	-	-

The data obtained show that in patients with comorbidities obesity occurs much more often (69.85%) than in the group of patients with EAH (43.47%) and BA (34.78%), ($p < 0.05$).

Conclusions.

1. AH in the BA patients examined by us is an independent disease, the severity of its course is determined by the stage of the disease, the degree of increase in blood pressure and risk factors. EAH and BA have a mutually aggravating effect.
2. Among those examined, the time of manifestation of hypertension in patients with bronchial asthma and the time of the first symptoms of hypertension appearing are of great importance. The results showed that in a larger number of patients (54.28%) the first symptoms of AH occurred before the manifestation of BA, and 22.86% noted the simultaneous appearance of symptoms of BA and AH.
3. Hereditary predisposition is recognized as an important risk factor for hypertension. In the group of patients with combined pathology, heredity for BA was burdened in 28.76%, for EAH in 64.38% of cases. In the control groups of patients, heredity was burdened in 47.82% of cases according to EAH and in 30.43% of cases.
4. Overweight is a risk factor for hypertension. In patients with combined pathology, obesity occurs much more frequently (69.85%) than in the group of patients with EAH (43.47%) and BA (34.78%).



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