

CLINICAL FEATURES OF THE COMORBID STATE OF ARTERIAL HYPERTENSION AND BRONCHIAL ASTHMA

Mukhamedjanova Mastura Khayatovna

Bukhara State Medical Institute Republic of Uzbekistan

mikadoch@list.ru

Jumaeva Madina Fakhriddinovna

Bukhara State Medical Institute Republic of Uzbekistan

Nurova Nigora Sadilloevna

Bukhara State Medical Institute Republic of Uzbekistan

Abstract: Hypertension in the examined patients with AD is a self-respecting disease; the severity of its course is determined by the stage of pain, the degree of increase in blood pressure and risk factors. AH and BA have a mutually beneficial effect. Hereditary predisposition is recognized as an important risk factor for hypertension. In the group of patients with concomitant pathology, heredity for asthma was burdened in 28.76%, for arterial hypertension - in 64.38% of cases. Being overweight is a risk factor for hypertension. In patients with combined pathology, overweight is much more common than in the group of patients with hypertension and asthma.

Keywords: bronchial asthma, hypertension heredity, risk factors for overweight, prevalence.

Relevance.

Bronchial asthma refers to multifactorial diseases, the etiopathogenesis of which is determined by the complex effects of endogenous and exogenous factors, among which environmental factors play a special role. 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 [5].

Among allergic diseases, bronchial asthma (BA) is one of the most common. According to epidemiology data, over the past 10 years, 4-10% (about 300 million people) of the world's population suffer from this disease [5].

In recent years, the problem of multi- and comorbidity has increasingly attracted the attention of researchers [3,4]. The probability of developing combined diseases increases with an increase in life expectancy, which can be explained by both age-related changes and negative effects of the environment and living conditions for a long time.

The possibility of combining BA and AH was first pointed out in the Russian literature by B.G. Kushelevsky and T.G. Raneva in 1961. They considered this combination as an example of "competing diseases". Further studies have shown that the prevalence of arterial hypertension in patients with bronchial obstruction averages 34.3% [6].

The growing incidence of AD is combined with some features of its course, complications and outcomes. The number of patients whose first manifestations of the disease occurred after 40-50 years has increased [2]. Therefore, BA has become more often combined with diseases of the cardiovascular system, which in turn have significantly "rejuvenated" [2]. 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 aggravates the course of diseases and creates difficulties in treatment [9]. The mechanisms that determine the chronization of the disease are often common, and therefore a greater understanding of the common links of combined pathology will allow overcoming the known difficulties of its therapy [4].

In recent years, increased attention has been paid to the combination of AD with arterial hypertension (AH) due to the connection between them that is often noted in clinical practice. According to various authors, the frequency of hypertension in patients with AD varies in a fairly wide range - from 6.8 to 76.3%, averaging 34.3% [3].

Elevated blood pressure is quite common in patients with bronchial asthma and may be a consequence of chronic hypoxia, treatment with beta-adrenomimetics and glucocorticosteroids, and other causes. There is no consensus in the literature on the causes of changes in blood pressure in patients with bronchial obstruction [6]. On the other hand, exacerbation of bronchial asthma provokes the destabilization of hemodynamics in such patients, which leads to an increase in blood pressure and leads to a deterioration in well-being [7].

The purpose of the study

To evaluate the clinical characteristics of patients with bronchial asthma combined with arterial hypertension.

Material and methods of research

A comprehensive clinical and instrumental examination of 110 patients who were on inpatient treatment in pulmonological, therapeutic departments on the basis of the regional multidisciplinary medical center of Bukhara since February 2017 was carried out. until March 2020.

All patients underwent a generally accepted clinical study:

anamnesis collection; examination; physical examination; laboratory research methods: general blood analysis; general urine analysis; general sputum analysis with Gram staining; X-ray, radiography or fluorography of the chest organs in two projections; electrocardiography; consultation of an optometrist.

73 patients who were on inpatient treatment in the pulmonology department were examined.

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

Results and discussions

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

The examination included patients with various degrees of severity of AD: 12 patients (16.43%) had a mild persistent course, 61 patients (83.56%) had moderate severity.

The severity was determined based on the recommendations of the Global Strategy for the Treatment and Prevention of Bronchial Asthma (USA, 2002).

The duration of BA ranged from 1 year to 20 years and averaged 5.75 ± 2.8 years.

All patients had concomitant arterial hypertension, in 23 (31.50%) II-degree, in the rest - 50 (68.49%) I-degree. The degree was determined on the basis of the classification proposed in the European recommendations of the EOG-EOC, 2003: First stage (mild) - SAD 140-159 mmHg, DAD 90-99 mmHg, Second stage (moderate) - SAD 160-179 mmHg, DAD - 100-109 mmHg. The duration of AH ranged from 1 year to 15 years and averaged 4.8 ± 1.1 years. 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 by duration of BA and AH with their combined course.

Criterion	Number of patients		Average age of AD onset	Average age at onset of hypertension
	abs.	%	$M \pm m$	$M \pm m$
AH developed before BA manifestation	38	52.05	52.58 ± 1.79	48.33 ± 2.9
Manifestation of AH and BA at the same time	17	24.65	48.2 ± 2.1	48.2 ± 2.1
BA developed before AH	15	21.30	41 ± 3.17	$50 \pm 1D$

The table shows that in a larger number of patients-38 people (52.05%), the first symptoms of hypertension occurred before the manifestation of AD, and 18 people (24.65%) marked the simultaneous appearance of symptoms of AD and hypertension, thus, we can exclude the time criterion in most patients with a combined course of AD and hypertension.

Patients with established forms of symptomatic arterial hypertension, pulmonary hypertension, severe bronchial asthma, hormone-dependent bronchial

asthma, chronic pulmonary heart disease, hypertension above grade II, circulatory insufficiency, impaired glucose tolerance were excluded from the study.

To assess the clinical and functional features of the combined course of BA and AH, two control groups of patients were examined. The first group consisted of 23 patients suffering from EAG, the second - 23 patients with AD and normal blood pressure.

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

The average age of patients with AD was 51.61 ± 1.98 years (from 39 to 69 years), 8 men (34.78%), 15 women (65.21%). The duration of the BA course is 7.18 ± 2.3 years. 4 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 blood pressure level, there were no indications of episodes of increased blood pressure in the anamnesis.

Thus, the duration of 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 gender, age, form of the disease and severity in all groups is quite close.

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

Table 2

Clinical and functional characteristics of the studied groups.

Index		AG and BA	BA	AG
number of patients, people		73	23	23
number of patients in%	Men	29	39	35
	women	90	80	84
Average age, years		52.95 ± 3.02	51.61 ± 1.98	56.8 ± 3.64
Average duration of hypertension, years		4.8 ± 1.1	-	6.75 ± 2.67
Average BA duration, years		5.75 ± 2.8	7.18 ± 2.3	
BA form, number of patients in%	allergic	17.80	13	
	non-allergic	5.47	4	
	mixed	76.71	56	
BA	easy	16.43	12	

severity, number of patients in%	average	83.56	61	
AH degree, number of patients in%	1st degree	68.49	-	50
	2nd degree	31.50	-	23

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

The allergic history was burdened in the examined patients in 27.39% of cases with drug allergy in the group with combined pathology and 21.73% of cases in the group with BA, in 39.98% of cases, allergic examination revealed sensitization to household allergens in patients with BA and AH, in 30.43% of cases in the group with BA, in 28.76% of cases to pollen allergens, in 5.47% of cases -capidermal in patients with BA and AH, in patients with BA 26.08% and 4.34%, respectively.

Thus, there was no significant difference in the allergological history between the study and the control group of patients.

Heredity is of great importance in the development of both hypertension and BA. In the group of patients with combined pathology, heredity for BA is burdened in 28.76%, for hypertension in 64.38% of cases (Figure 1). In the control groups of patients, heredity was burdened in 47.82% of cases for hypertension and in 30.43% of cases for BA.

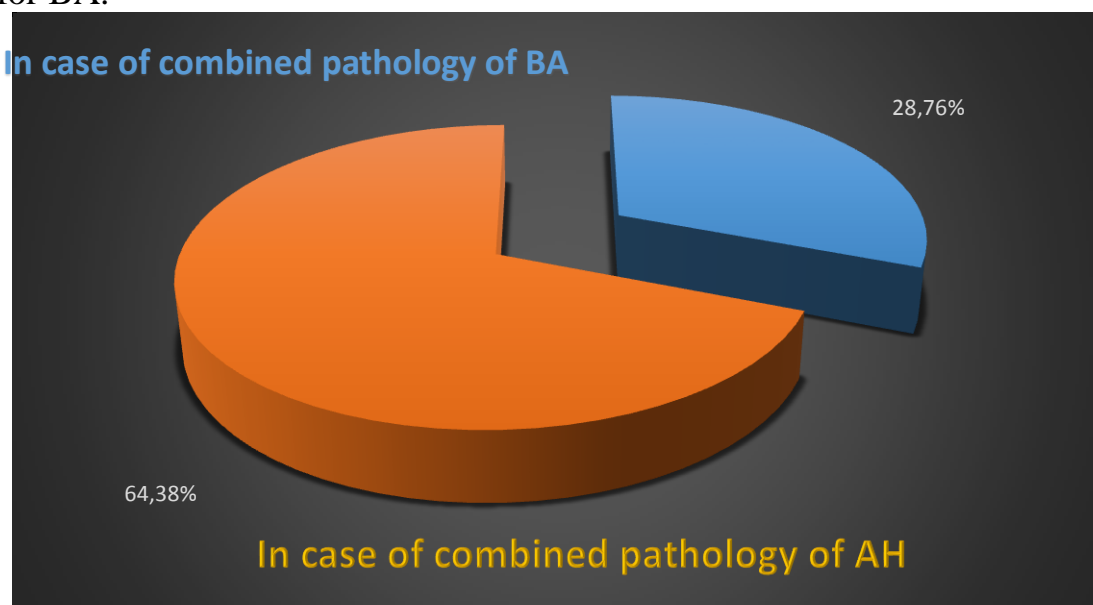


Fig.1. Heredity in a group of patients with a combination of BA and AH

Among the transferred diseases, all patients indicated acute respiratory viral infections, sore throats, bronchitis, concomitant pathology included: osteochondrosis of the vertebral column (28 people), peptic ulcer of the stomach and duodenum (7 people), uterine fibroids (19 people), coronary heart disease (15 people). All diseases were in remission.

Upon objective examination, the condition of all patients was assessed as satisfactory.

Since overweight is of great importance for the development of hypertension, BMI was calculated in the group with combined pathology, in patients with AD, with EAG and compared them with each other. The data obtained (Table 3) shows that in patients with combined pathology, excess body weight is much more common (76.69%) than in the group of patients with EAG (43.47%) and BA (30.43%), ($p < 0.05$).

Table 3

Comparison of BMI in patients with combined pathology and in the group with EAG and BA.

UP	GRO M	NOR 18.5- 24.9	PRE OBESITY 29.9	I- 25-STEP.			II- STEP.		III- STEP. > 40	
				30- 34.9	35- 39.9					
BA +		4.10%	16.43%	43.83%	19.17%	13.69%				
AG		8.69%	47.82%	39.13%	4.34%					
BA	%	47.82	21.73%	30.43						

Percussion box sound over the pulmonary fields was detected in 18 people (26.65%) in the group with combined pathology, in 2 people (8.69%) in the group of patients with AD and in 3 people (13.04%) in the group with EAG, in the rest - pulmonary sound. Auscultation vesicular respiration was heard in 13 patients (17.80%) with BA and AH, 7 patients (21.73%) with BA and 17 patients (73.91%) with EAG, weakened vesicular respiration in 29 patients (39.72%) with BA and AH, in 7 patients (30.43%) with BA and 3 patients (13.04%) with EAG, in other patients hard breathing: BA and AH - 13 (17.80%), BA - 7 (30.43%). Dry wheezing at the time of examination was heard in 42 patients (61.64%) with BA and AH and 12 patients (52.17%) with BA.

The frequency of respiratory movements ranged from 16 to 24 per minute in the groups with BA and AH and BA, in patients with EAG 12-16 per minute. During percussion, the boundaries of the heart were expanded to the left by 1-1.5 cm in 21 (86.95%) patients with hypertension, in 61 (83.56%) with BA and hypertension. With auscultation of the heart, the rhythm is correct in all patients, with a heart rate from 56 to 100 per minute. In patients with a combination of BA and AH, the heart rate is higher than in the other two groups, from 80 to 100 per minute. Blood pressure exceeded the norm in patients with EAG and BA with AH.

Laboratory studies have found leukocytosis in 23.28% of the total blood count, eosinophilia in peripheral blood in 16.43% of cases in the group with combined pathology, and in the group only with BA in 21.73%, 13.04%, respectively. In the group of patients with hypertension, leukocytosis and eosinophilia were not noted. In sputum, eosinophilia (among those secreting sputum) was determined approximately equally in the control group and the comparison group and amounted to 1%.

Radiological signs of pulmonary emphysema were detected in 21 (28.76%) patients in the group with combined pathology and 4 (17.39%) patients with hypertension.

During electrocardiographic examination, sinus tachycardia was registered in 3 patients (13.04%) with AD and normal blood pressure, in 33 patients (45.20%) with AD and hypertension, in 5 patients (21.73%) with AD, incomplete blockade of the right leg of the His bundle and metabolic changes of the myocardium were noted, in 12 patients (16.43%) with AD and metabolic changes were registered. In 3 patients (13.04%) with hypertension, left ventricular myocardial hypertrophy.

Fundus examination revealed changes in 17 (23.28%) patients with BA and AH, 9 (39.13%) with EAG.

Conclusions.

1. Hypertension in the 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. EAG and BA have a mutually aggravating effect.

2. Hereditary predisposition is recognized as an important risk factor for hypertension. In the group of patients with combined pathology, heredity for BA is burdened in 28.76%, for EAG in 64.38% of cases. In the control groups of patients, heredity was burdened in 47.82% of cases by EAG and in 30.43% of cases. Overweight is a risk factor for hypertension. In patients with combined pathology, excess body weight is much more common (76.69%) than in the group of patients with EAG (43.47%) and BA (30.43%).

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