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CHARACTERISTICS OF RISK FACTORS OF BRONCHIAL ASTHMA IN FERGANA VALLEY (RESULTS OF LONG-TERM EPIDEMIOLOGICAL MONITORING)

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Abstract:

A literature review analysis is provided in depth and comprehensively, and the effects of the SARS-COV-2 virus on various phenotypes and endotypes of bronchial asthma have been demonstrated. In this regard, it has become urgent to expand epidemiological investigations, but until now, such studies have not been conducted on a large scale, especially in the conditions of Uzbekistan, and in particular, a special pharmacoepidemiological analysis has not been devoted to bronchial asthma, taking into account the conditions of emergency medical care.

Keywords: Bronchial asthma, risk factors, characteristics of bronchial asthma exacerbation, pharmacoepidemiology.

Assessment of modern characteristics of exacerbation of bronchial asthma (BA) and rapid treatment prevention, development and strengthening of alternative measures without hesitation are considered to be important issues today.

Despite the implementation of many effective methods for the treatment of BA, it accounts for 1 in 250 deaths in the world every year, and it is predicted that by 2025, the number of patients with this disease will reach 450 million. The economic and social costs are very high - annual costs for BA are 17.7 billion euros in Europe, 20 billion dollars in the USA [2].

In Uzbekistan, since the beginning of the new century, the epidemiological situation in relation to BA continues to change. For example, the following scientific data require attention: 1) irreversible severe asthma occurs in 20.7% of men and 10.7% of women in the city of Tashkent: 2) acute asthma is not diagnosed in time in 81.6% of cases; 3) the risk of developing severe asthma increases every 10.6 years due to the prolonged duration of the disease; 4) the late diagnosis is the main reason for the low quality of medical care [1].

In the study, based on the mentioned necessity, 20-year epidemiological description of the risk factors of BA in Andijan conditions of Fergana Valley was studied and evaluated.

RESEARCH MATERIAL AND METHODS

This study is an analytic retrospective epidemiologic study by design. This scientific approach is recommended for use in epidemiological investigations by the World Health Organization (WHO) as a high methodological value and modern [GINA, 2020]. Because the information obtained in this way makes it possible to form scientifically based prevention of BA in the regions. The research materials were taken from the Andijan branch of the Republican Emergency Medical Research Center (RShTYoIM AF), which represents the entire population of the Fergana Valley. Its object is the population of patients with BA. During 2001-2020, epidemiological and pharmacological monitoring was organized in a total of 1663 populations.

Questionnaire, physical, laboratory, instrumental and statistical methods were used in the research. The study used a special "Questionnaire for identification of chronic non-communicable diseases and their risk factors" (WHO, 2009). A questionnaire was completed for each patient with BA, medical history data were carefully studied, and the questionnaire was analyzed and evaluated.

In 20-year epidemiological monitoring, the prevalence of BA risk factors in the general population aged 18-90 years is 62.07 percent. The frequency of increase is recorded with 23.81 percent degree. BA is confirmed by the detection and change of the main risk factors during 2001-2020 with the following frequencies: hereditary predisposition to atopy (AIM) - from 1.75 and 0.00 percent (defined without growth), obesity from 24.9 and and 23.5 percent (1 with a decrease of .4%; $R<0.05$) allergic XO from 28.8 and 25.5% (with a decrease of 1.9%; $R<0.05$), infectious agents from 21.8 and 25.5% (3, with an increase of 7%; $R<0.05$), occupational factors from 22.3 and 25.3% (with an increase of 3.0%; $R<0.05$), air pollutants from 0.4 and 0.2% (0.2 with a percentage decrease; $R<0.05$). The frequency of prevalence of total risk factors is determined from 19.13 and 42.94 percent, that is, the detection of risk factors has increased by 2.2 times in the last 20 years ($R<0.05$). (shown in Figure 1)

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1 – table
Epidemiology of risk factors of bronchial asthma
(20 years of monitoring)

Audit years	Risk factors for bronchial asthma												Total factors	
	AIM		Obesity		Allergens		Infectious agents		Occupational factors		Aero-polyutentlar		RF	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
2001 year	4	1,75	57	24,9	66	28,8	50	21,8	51	22,3	1	0,4	229	19,13
P value	x		<0,05		<0,05		<0,05		<0,05		<0,05		<0,05	
2020 year	0	0,00	121	23,5	131	25,5	131	25,5	130	25,3	1	0,2	514	42,94
2001-2020	4	0,54	178	24,0	197	26,5	181	24,4	181	24,4	2	0,3	743	62,07

The 20-year epidemiological description of risk factors is numerically interpreted in Table 2. The frequency of detection of total risk factors in the population of women in the study area is confirmed by "increase" from 31.91% to 68.09%, that is, 36.08% or 2.2 times over the last 20 years (R<0.05).

2 – Table
Epidemiology Of BA risk factors in a female population

Audit years	Risk factors for bronchial asthma												Total RF	
	AIM		Obesity		Allergens		Infectious agents		Occupational factors		Aero-pollutants			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
2001 year	5	1,31	86	22.5	97	25.4	79	20.7	80	20.9	35	9.2	382	31.9
P value	x		<0,05		<0,05		<0,05		<0,05		<0,05		<0,05	
2020 year	0	0,00	185	22.7	203	24.9	204	25,0	203	24.9	20	2.5	815	68.09
2001-2020	5	0,42	271	22.6	300	25.1	283	23.6	283	23.6	55	4.6	1197	100.0

With a high prevalence, in 2001 and 2020, that is, after 20 years, the following main risk factors of BA in women are noted: obesity from 22.5 and 22.7 percent (R<0.05), allergic factors from 25.4 and From 24.9 percent (R<0.05), infectious agents from 20.7 and 25.0 percent (R<0.05) and occupational factors from 20.9 and 24.9 percent (R<0.05). With a sharp difference, that is, with a low prevalence, AIM is observed from 0.65 and 0.00 percent, and air pollutants from 22.2 and 6.3 percent (R<0.05). A 20-year increase in OS is confirmed by 2.3% in obesity, 3.6% in allergic factors, 5.3% in infectious agents, and 5.3% in occupational factors. It is determined by the reduction of air pollutant distribution frequency to 15.9% and AIM to 0.00%. The analysis of the obtained results confirmed that the 20-year evolution of risk factors is represented by specific features in the male population, that is, it differs from the characteristics in women (Table 3). The main factors of BA in men are characterized by a prevalence of 37.93 percent in a 20-year epidemiological prospective monitoring.

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3 – Table
Epidemiology Of Ba risk factors in a male population

Audit years	Risk factors for bronchial asthma												Total factors	
	AIM		Obesity		Allergens		Infectious agents		Occupational factors		Aero-Polyurethanes			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
2001	1	0,65	29	19,0	31	20,3	29	19,0	29	19,0	34	22,2	153	12,78
P value	x		<0,05		<0,05		<0,05		<0,05		<0,05		<0,05	
2020	0	0,00	64	21,3	72	23,9	73	24,3	73	24,3	19	6,3	301	25,15
2001 - 2020	1	0,22	93	20,5	103	22,7	102	22,5	102	22,5	53	11,7	454	37,93

In the years of investigation, the frequency of their detection in the population with BA increased from 12.78 percent (in 2001) to 25.15 percent (in 2020), that is, an increase of 12.3 percent or an increase of 2.1 times (R<0.05). According to the 20-year follow-up analysis, it is confirmed that - AIM from 0.65 and 0.00 percent, obesity from 19.0 and 21.3 percent (with an increase of 2.3 percent; R<0.05), allergic factors from 20.3 and 23.9 than percent (with an increase of 3.6 percent, R<0.05), infectious agents from 19.0 and 24.3 percent (with an increase of 5.3 percent; R<0.05), occupational factors 19.0 and 24.3 than percent (with an increase of 5.3 percent, R<0.05) and aeropollutants are observed in 2001-2020 with a difference in distribution frequency from 22.2 and 6.3 percent (with a decrease of 15.9 percent; R<0.05). Over 20 years, the risk factors of BA are determined by the frequency of distribution in the population of 18-90 years old in the conditions of Andijan as follows: AIM 0.54 percent (from 0.42 percent in women and 0.22 percent in men; R<0.05), obesity 24.0 percent (from 22.6 percent in women and 20.5 percent in men, R>0.05), allergic factors 26.5 percent (from 25.1 percent in women and 22.7 percent in men; R>0.05), infectious agents 24 ,4 percent (23.6 percent in women and 22.5 percent in men; R>0.05), occupational factors 24.4 percent (23.6 percent in women and 22.5 percent in men; R>0.05) and eropolyupants 16.3 percent (from 4.6 percent in women and 11.7 percent in men; R<0.01). Epidemiological descriptions of the prevalence of BA risk factors by age are presented in Table 4 below.

4 –Table
Age-Specific distribution characteristics of BA risk factors and 20-year changes

Текширув йиллари	18 – 44 ёшли популяцияда БА ХО												Жами ХО	
	АИМ		семизлик		аллергенлар		Юқумли агентлар		Касбий омиллар		Аэро-полютентлар			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
2001	0	0,0	2	18,2	3	27,3	3	27,3	3	27,3	0	0,0	11	0,92
P value	x		<0,05		<0,05		<0,05		<0,05		<0,05		<0,05	
2020	0	0,0	56	21,3	66	25,1	67	25,5	67	25,5	7	2,7	263	21,97
2001 - 2020	0	0,00	58	21,2	69	25,2	70	25,3	70	25,5	7	2,7	274	100,0

It was found that the main risk factors of BA in the population aged 18-44 years were confirmed with the following prevalence rates: AIM 0.00%, obesity 21.2%, allergic RF 25.2%, infectious agents 25.3%, occupational factors 25.5 percent air pollutants 2.7 percent.

20-year changes in the frequency of detection of BA risk factors from 2001 to 2020 are represented by their detection at the following levels: AIM from 0.00 and 0.00%, obesity from 18.2 and 21.2% (3.0% increase with; R<0.05), allergic factors from 27.3 and 25.1 percent (with a decrease of 2.2 percent; R<0.05),

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infectious agents from 27.3 and 25.5 percent (with a decrease of 2.0 percent with, R<0.05), occupational factors from 27.3 and 25.5 percent (with a decrease of 2.8 percent; R<0.05) and air pollutants from 0.00 and 2.7 percent (with an increase of 2.7 percent ; R<0.05). Table 5 describes the risk factors of BA in individuals aged 45-59 years.

5 – table
Description of BA risk factors

Audit years	BA RF in the 18-59-year-old population												Total RF	
	AIM		Obesity		Allergens		Infectious agents		Occupational factors		Aero-Polyurethanes			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
2001	4	3,0	33	24,8	32	24,1	27	20,3	27	20,3	10	7,5	133	11,11
P value	x		<0,05		<0,05		<0,05		<0,05		<0,05		<0,05	
2020	0	0,00	55	23,9	58	25,2	58	25,2	57	24,8	2	0,9	230	19,21
2001 - 2020	4	1,10	88	24,2	90	24,8	85	23,4	84	23,1	12	3,3	363	100,0

In the general population, 45-59 year olds, risk factors directly related to BA in 20-year follow-up are as follows: AIM 1.10%, obesity 24.2%, allergens 24.8%, infectious agents 25.2%, occupational factors 23, 1 percent and air pollutants 0.9 percent. The prevalence of these risk factors in the 1st year (2001) and the last year (2020) of the investigation is recorded differently: AIM from 3.0 and 0.00 percent (with a decrease), obesity from 24.8 and 23.9 percent (0.9 percent with a decrease; R<0.05), allergic factors from 24.1 and 25.2 percent (with an increase of 1.1 percent; R<0.05), infectious agents from 20.3 and 25.2 percent (4.9 percent with an increase; R<0.05), occupational factors from 20.3 and 24.8 percent (with an increase of 4.5 percent; R<0.05) and air pollutants from 7.5 and 0.9 percent (a decrease of 6.6 percent with; R<0.05).

Over the course of 20 years, the frequency of detection of XO in 50.0% of the population aged 45-59 years has decreased and in 50.0% it has been detected more and more. In the case of total XO, in this group it is observed with "growth" from 11.11% to 19.21%, i.e. up to 8.10% or 1.7 times (R<0.05). Epidemiological description of risk factors of Ba in the elderly population and characteristics of its 20-year evolution are presented in Table 6.

6 – table
Prevalence and 20-year evolution of BA risk factors in an elderly population

Audit years	Risk factors for bronchial asthma												Total RF	
	AIM		Obesity		Allergens		Infectious agents		Occupational factors		Aero-Polyurethanes			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
2001	1	0,7	29	21,5	34	25,2	29	21,5	29	21,5	13	9,6	135	11,28
P value	x		<0,05		<0,05		<0,05		<0,05		<0,05		<0,05	
2020	0	0,00	50	22,5	54	24,3	54	24,3	54	24,3	10	4,5	222	18,55
2001 - 2020	1	0,28	79	22,1	88	24,6	83	23,2	83	23,2	23	6,4	357	100,0

According to the results of epidemiological monitoring for 20 years, according to the analysis of the data in the table and figure 4.6 in the appendix, the frequency of detection of total risk factors among the 60-74 population (in the elderly) is from 11.28 percent (in 2001) to 18.55 percent (in 2020), i.e. 7 , increased

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by 27 percent or 1.66 times (R<0.05). During the follow-up years, XO was observed with the following mean prevalence frequencies: AIM 0.28 percent, obesity 22.1 percent, allergic factors 24.6 percent, infectious agents 23.2 percent, occupational factors 23.2 percent, and air pollutants 6.4 percent.

During the 20-year epidemiological monitoring period, the results of the first and final examination in this population confirmed the frequency and changes in the prevalence of risk factors of BA at the following levels: AIM from 0.7 and 0.00 percent, obesity from 21.5 and 22.5 percent (R<0, 05), that is, with an increase of 1.0 percent; allergic factors from 25.2 and 24.3 percent, that is, with an increase of 0.8 percent (R<0.05), infectious agents from 21.5 and 24.3 percent (with an increase of 2.8 percent; R<0.05) , occupational factors from 21.5 and 24.3 percent (with an increase of 2.8 percent; R<0.05) and pollutants from 9.6 and 4.5 percent (with a decrease of 5.1 percent; R<0.05).

Future analyses, in this direction, were devoted to determining the prevalence of risk factors of BA in the elderly population (75-90 years) and evaluating the 20-year changes (shown in Table 7).

7 – table
Epidemiology of BA risk factors in the elderly population and 20 years of evolution

Audit years	Risk factors												Total RF	
	AIM		Obesity		Allergens		Infectious agents		Occupational factors		Aero-Polyurethanes			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
2001	0	0,0	22	21,4	28	27,2	20	19,4	21	20,4	12	11,7	103	8,60
P value	x		<0,68		<0,55		<0,31		<0,42		<0,05		<0,75	
2020	0	0,00	24	24,0	25	25,0	25	25,0	25	25,0	1	1,0	100	8,35
2001 - 2020	0	0,00	46	22,7	53	26,1	45	22,2	46	22,7	13	6,4	203	100,0

Research data showed that the prevalence of total risk factors in the elderly population remained almost unchanged for 20 years at the same levels of 8.60 percent (in 2001) and 8.35 percent (in 2020).

Risk factors are confirmed in this population at 20-year follow-up with the following frequencies: AIM 0.00 percent, obesity 22.7 percent, allergic factors 26.1 percent, infectious agents 22.2 percent, occupational factors 22.7 percent, and air pollutants 6.4 percentage.

In 2001-2020, XO is recorded with the following detection frequencies and changes: AIM from 0.00 and 0.00 percent, obesity from 21.4 and 24.0 percent (with an increase of 2.6 percent; R<0.05), allergic factors from 27.2 and 25.0 percent (with a decrease of 2.2 percent; R<0.05), infectious agents from 19.4 and 25.0 percent (with an increase of 5.6 percent; R<0.05), occupational factors from 20.4 and 25.0 percent (with an increase of 4.6 percent; R<0.05) and air pollutants from 11.7 and 1.0 percent (with a decrease of 10.7 percent; R<0.05). It can be concluded that 7 risk factors (AIM, obesity, allergic factors, infectious agents, occupational factors, aeropollutants) are distinguished, which are significantly related to the origin of BA in the conditions of the valley. They are mostly recorded with high frequency distribution compared to other studies (>60). 50 percent of risk factors have increased significantly over the past 20 years, and this has been shown to apply to all age groups (18-44, 45-59, 60-74, and 75-90) and for both men and women. Therefore, taking into account these results, the implementation of primary (without drugs) and secondary (with drugs) prevention of risk factors, as well as control of BA, will reduce the medical, economic and social losses related to BA by at least 50%.

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