REGIONAL CURRENT PROBLEMS AND SOLUTIONS OF BRONCHIAL ASTHMA
(according to the results of a special epidemiological study)

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Considerable clinical progress has been made around bronchial asthma (BA). At the same time, there are many unresolved issues. Until now, there is no cure, there is a fear of taking drugs for life, and it will continue to increase in the coming years, and by 2025, the number of patients with BA will reach 450 million. Its loss is high: • it is one of every 250 deaths in the world; • annual costs for it are from 17.7 billion euros (in the European Union) to 20 billion dollars (in the United States) [5,14]. Unacceptable epidemiological situation regarding BA has been maintained in Uzbekistan for several years. For example, in some of its regions, every fifth person has this disease. About 82.0% of the disease is diagnosed late, and severe BA has been reported to increase more than 10-fold with increasing age [2, 4, 10]. Life-saving drugs are inconsistently and ineffectively used in different regions, their pharmacoepidemiology is not sufficiently studied in patients with BA, and, on top of that, negative side effects are increasing: up to 15.1%, adverse drug reactions occur and are simple to eliminate. the hospital costs up to 5.6 million dollars per year [9, 11, 18].

Therefore, the issue of mass (screening) study of BA among the population, the search for its new risk factors, and the development of an alternative system for early diagnosis of the disease and urgent rapid treatment and prevention in all regions of Uzbekistan, including the Fergana Valley, based on local epidemiological situations, has become urgent and necessary. has become Based on these and in accordance with the scientific and research plans carried out at the Andijan State Medical Institute, the dissertation work was carried out within the framework of the theme "Study of the epidemiology of chronic non-infectious diseases, optimization of treatment methods, early diagnosis and prevention, and development of advanced innovative technologies" in different regions of Uzbekistan. The main goal was to assess the modern characteristics of the outbreak of BA and improve the system of alternative treatment and prevention.

The materials of the scientific research were taken from the branches of the Andijan Branch of the Republican Scientific Center for Emergency Medical Care (RSCfEMC AB), which represents the entire population of the Fergana Valley. Prospective (20-year) epidemiological and pharmaco-epidemiological monitoring was performed on a total of 1663 18-90-year-old population during 2001-2020 (20-year period). The inspection objects are described as follows: • 594 (35.7 percent) men; • 1069 (64.3 percent) women; • 18-44-year-olds 321 (19.3 percent); • 504 people aged 45-59 (30.3 percent); • 570 people aged 60-74 (34.3 percent); • 268 people aged 75-90 (16.1 percent). Questionnaire, physical, laboratory, instrumental and statistical examination methods recommended by WHO were used. Each patient-population (1663) was studied and analyzed according to a specially developed questionnaire ("Pharmaeco-epidemiological questionnaire") in order to study the 20-year dynamics of BA control and its achievement. BA control criteria were defined and applied according to international recommendations [GINA, 2019; ERS and ATS, 2009].

General, intrinsic and extrinsic risk factors of BA were identified and evaluated according to the criteria recommended by the World Health Organization (WHO) and used in epidemiological studies [WHO, 2016]. Results of the study Statistical significance was studied using Epi info, SPSS Statistics and Excel 2021 of the Microsoft Office suite of programs. It should be noted that there is no study in Uzbekistan that has integrated

prospective epidemiological and pharmacoepidemiological monitoring, just like this work. Comprehensive studies based on a 20-year follow-up, devoted to BA, are very few internationally, and the existing data have lost their value by now [1, 3, 9].

The results of the study showed and confirmed the following. The age factor is confirmed as a pathogenic risk factor in BA in young people (17-44 years old), middle-aged people (45-59 years old) and elderly people (60-74 years old). In the elderly (75-90 years old), the contribution of the age factor in causing BA (16.1 percent) is more than doubled (R < 0.01). Frequency of distribution of BA it is determined by significant differences depending on religious status, age, place of residence, level of education, family factor and professional factor. For example, the age factor plays a 25.0% role in the origin of BA. The role of religious status is confirmed in the development of BA in Muslims with a frequency of almost 100.0% and with a frequency of only 0.6% in Christians. It is determined from 62.4 percent of urban residents and 37.6 percent of rural residents. The prevalence of BA in high and middle-educated people is determined from 4.2 and 95.8 percent with a significant difference. The occupational factor also has a significant pathogenic effect on BA, and as a result, its detection frequency is confirmed with a large difference in the population with mental (2.2 percent) and physical labor (97.8 percent) (R < 0.0001).

These data almost confirm the results reported by other researchers, but differ by an insignificantly high level.

The results of 20-year epidemiological monitoring confirmed the following information for the first time in the population of Uzbekistan aged 18-90: 1) atopic type accounted for 78.3% of all BA (76.3% in men and 79.4% in women), only 21.7 percent is nonatopic or mixed type; in the last 20 years, the detection frequency has increased by 24.9%; 2) partially controlled BA is noted with a prevalence of 45.5% (from 44.6% in men and 45.9% in women), increasing to 40.3% in 20 years; 3) uncontrolled BA is confirmed with a prevalence of

48.9% (from 48.8% in men and 48.9% in women), but has decreased to 20.1% in the last 20 years in the population aged 18-90. So, in the conditions of Andijan, the effectiveness of BA treatment is more than 1.0 percent every year, and every fifth patient has a positive result; 4) managed BA is confirmed with an average prevalence of 3.7 percent in the last 20 years (from 3.5 and 4.2 percent in women and men), the frequency of detection has increased by 2.4 times (10.5 percent) in 20 years; 5) asthmatic state is recorded with a prevalence of 5.3% (from 5.1% in men and 5.4% in women), 3.3 times over 20 years (from 20.3% to 6.3%, i.e. 14.0%)) decreased; 6) severe BA is characterized by a prevalence of 63.1%, decreased by 14.5% in 20 years (21.1% in men and 10.8% in women); 7) the average prevalence of severe BA is observed at the level of 45.8% (from 43.9% in men and 46.9% in women), "increasing" to 1.9% (0.2% in men and 2.8% in women) in the last 20 years was; 8) the prevalence of mild BA is 10.4% (12.6% in men and 10.4% in women), the detection frequency has decreased to 14.2% in 20 years. no confirmed data. In particular, the regional epidemiological description of BA has not been clarified in the preventive content [12, 20].

But in clinical data, it is confirmed that BA continues to be among the most common and socially significant diseases [17]. It has been confirmed that the mild form of BA is mainly a disease of young people, and it is rarely confirmed for the elderly and the elderly. EBA with a high prevalence (5.6 percent) and with a low prevalence of twice as much is recorded in the middle-aged population (2.2 percent) and the elderly (2.2 percent). And in the elderly, it is confirmed at the level of 3.0 percent. Moderately severe bronchial asthma (OSBA) is determined by age - with a difference of 7.1%: 18-44 years with the highest prevalence (49.2%), 45-59 - 48.0%, 60-74 - 48, 1 percent and 75-90 - from 41.8 percent. Severe BA is also recorded with a difference of 10.1% depending on age: 18-44 years - 43.6%, 45-59 - 50.2%, 60-74 - 47.9% and 75-90 - 53.7% .

In Andijan, the epidemiology of the asthmatic condition was evaluated depending on age, and it became clear that according to the 20-year follow-

up, the asthmatic condition (AsX) is determined with a significant difference in different age groups: 18-44 years - 5.92 percent, 45-59 - 5 .75 percent, 60-74 - 5.26 percent and 75-90 - 4.10 percent. It has been proven that BA is confirmed with a difference of up to 1.0% depending on the age of the population, and it is mostly recorded in 18-44 (4.4%) and 45-59-year-olds (4.2%) with a relatively high prevalence. . It is observed with a prevalence of 3.2 and 3.4 percent in the elderly and elderly population. Partially controlled BA is observed with a significantly higher prevalence in 18–44 years (48.3%), 45–59 (46.2%), and 60–74 years (44.7%) with an age-dependent difference of 6.1%. 42.2 percent prevalence is confirmed in 75-90 year olds. In contrast, uncontrolled bronchial asthma (NBA) is detected with high prevalence rates in 75-90 year olds (52.2%), 60-74 (49.1%) and 45-59 (50.8%). Atopic bronchial asthma (ABA) is confirmed with the highest frequency in 18-44 (86.3%) and 45-59-year-olds (84.1%). It is recorded with a relatively low frequency in 60-74 (78.1%) and 75-90-year-olds (58.2%). Age-related frequency of ABA detection varies by 28.1%. The results of the study differ from the data on BA obtained by researchers in far abroad and Commonwealth countries, which are much higher and have changed sharply in the last 20 years [6, 7, 13, 15].

In particular, it is necessary to point out the following: 1) in the last 20 years, the characteristics of the origin and clinical course of BA in the valley conditions have changed dramatically, taking them into account, the existing prevention and treatment standards, algorithms, and programs will have to be improved; 2) In 20 years of monitoring, although the frequency of detection of BA has decreased, but the level of its indicators remains high compared to international results, it is necessary to increase the attention (mainly in the preventive direction).

It was confirmed in the study that 7 risk factors (genetic predisposition to atopy (GPA), obesity, allergic factors, infectious agents, occupational factors, aeropollutants) were identified, which are significantly related to the origin and course of BA in valley conditions. Compared to the results of other studies, they are detected at higher frequencies (60). 50% of these risk factors have increased regularly and significantly in the last 20 years. This trend of "growth" has been proven for all age groups (18 - 44, 45 - 59, 60 - 74 and 75 - 90), as well as for men and women.

In particular, the following specific epidemiological regional situation is confirmed in relation to the risk factors of BA: 1) the prevalence of the total risk factor (RF) is 62.07 percent among the population aged 18-90, and the growth frequency is recorded with a level of 23.81 percent; 2) atopy genetic predisposition (AGP) is recorded at 1.75 percent for 20 years, without growth; 3) the frequency of obesity decreased by 1.4%; 4) allergic RF decreased by 1.9%;   5) infectious agents increased by 3.7 percent;   6) the frequency of identification of professional factors increased by 3.0%;   7) the frequency of air pollution has decreased by 0.2%; 7) the frequency of prevalence of total risk factors of BA in different years is determined from 19.13 percent (in 2001) and 42.94 percent (in 2020), that is, it is confirmed that the frequency of detection of risk factors has increased 2.2 times over 20 years.

In the study, according to WHO and ARIA recommendations (2002, 2008), the characteristics of the modern clinical course of BA and their 20-year changes were studied and evaluated for the first time in the conditions of the Fergana Valley (in the case of Andijan).

Important results for science and practical medicine were noted: in the population of 18-90 years old, the traditional symptoms of BA are recorded with a significant difference and high frequency: expiratory shortness of breath (EShoB) and wheezing from 16.23 and 17.00 percent, cough from 24.70 percent, chest 13.60 percent of chest congestion and 28.50 percent of nocturnal symptoms; • The frequency of detection of these traditional symptoms has increased by 14.5 percent (from 23.89 percent to 39.43 percent) in women over the last 20 years; • such "growth" in men is confirmed by the indicator of 6.9 percent (from 14.04 percent to 20.97 percent). Over 20 years, the prevalence of BA with traditional symptoms increased by 19.0% in 18-44-year-olds, 2.69% in 45-59-year-olds, -0.92% in 60-74-year-olds, and -2.68%

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in 75-90-year-olds. . These data are important in the coordination of preventive treatment plans with regard to BA and in carrying out prognostication-based preventive activities and "urgent chronic" pharmacotherapy.

In order to compare and evaluate these data, no scientific studies were found in the literature that were devoted to the evaluation of the clinical course and traditional symptoms of BA in 20 years of epidemiological monitoring.

Another characteristic of the modern clinical course of BA in the Andijan population was its progression against the background of relatively high comorbidity, which was confirmed in our study. Among the diseases associated with BA (comorbidity, comorbid background), chronic obstructive pulmonary disease (COPD) is noted with a prevalence of 65.9%. AG (14.9 percent), pneumonia (9.4 percent) and other chronic diseases (CKD) are confirmed with relatively low frequencies (8.3 percent). Ischemic heart disease (IHD) and diabetes mellitus (DM)2 are comorbidities in BA with low frequency detection (from 0.9 and 0.6 percent). In the years of the epidemiological study, the comorbidity background (KomF) is determined from 19.30 percent (in 2001) and 19.88 percent (in 2020) in addition to BA. For 20 years, this figure has increased by only 0.58 percent.

The pharmacoepidemiological (PE) description of BA in the population of Andijan aged 18-90 and the results of a 20-year study and evaluation of its changes confirmed the following: 1) a total of 8 different drugs are used for the urgent treatment of BA in emergency departments: inhaled glucocorticosteroids (IGKS), antileukotriene drugs (ALP), long-acting ß2 agonists (LaBA), short and fast-acting ß2 agonists (QTBA), basic anti-inflammatory drugs (BAiD), anticholinergic drugs for inhalation (ADfI), eufillin and combined drugs; 2) 99.0 percent of the used pharmacotherapy complies with international clinical recommendations and 1.0 percent deviates from them; 3) as IGKS, basic drug (BDP), budesonide and fluticasone propionate are mainly used; 4) 2 types of ALP are mainly used (montelukast, zefirlukast); 5) two forms of DTBA, formoterol and salmeterol, are used; 6) QTBA forms of salbutamop, ventolin,

salmol Eco and fenoterol (berotek) were used; 7) Methylprednisolone, antihistamine drugs, magnesium sulfate and parenteral β-adrenomimetics and mucolytics are used as IAXP, combined drugs and auxiliary 2nd-line drugs according to international recommendations. 20-year FE monitoring confirmed that in the treatment of all types of BA, the main antiasthmatic drugs are prescribed with the following percentages: IGKS 65.0 percent, ALP - 21.5 percent, DTBA - 40.1 percent, QTBA - 72.5 percent, BYaQP - 23.2 percent, IAXP - 33.5 percent, QTT - 74.5 percent and KP - 53.6 percent. Deviations from compliance with pharmacotherapy in "key cases" of BA are confirmed from 78.5% (using ALP) to 27.5% (using QTBA).

In general, the results revealed in 20 years of pharmacoepidemiological monitoring serve, first, to coordinate pharmacotherapy in BA; secondly, in improving the safety and effectiveness of emergency antiasthmatic therapy, and thirdly, they have medical, economic and social importance in the development and establishment of pharmacovigilance and FE screening programs.

An important stage of the clinical-epidemiological assessment of BA in the study was the creation of an improved system of its early diagnosis and rapid regional treatment-prophylaxis. Such direction is recommended and recognized as a priority topic in modern science [8, 16, 19, 21].

Based on the obtained data, forecasting tables were created that allow to predict the relative probability of occurrence of BA in the population of Andijan aged 18-90 due to risk factors. In particular, it has been proven that the risk of developing atopic BA in the population of Andijan aged 18-90 increases with the direct effect of 13 risk factors. 4 are allergens, AIM, infectious agents and 18 − 44 age group are confirmed as "strongest RF". Under the influence of these risk factors or depending on them, the risk of "relative probability of the occurrence of BA" is confirmed as extremely high. 6 RFs are confirmed for internal and external risk factors that moderately increase the relative probability of developing ABA: 45-59 age group, occupational factors, comorbidity, air pollutants, 60-74 age group and obesity. 3 factors

were confirmed as "low risk" factors for ABA: 75-90 age group, male gender and female gender.
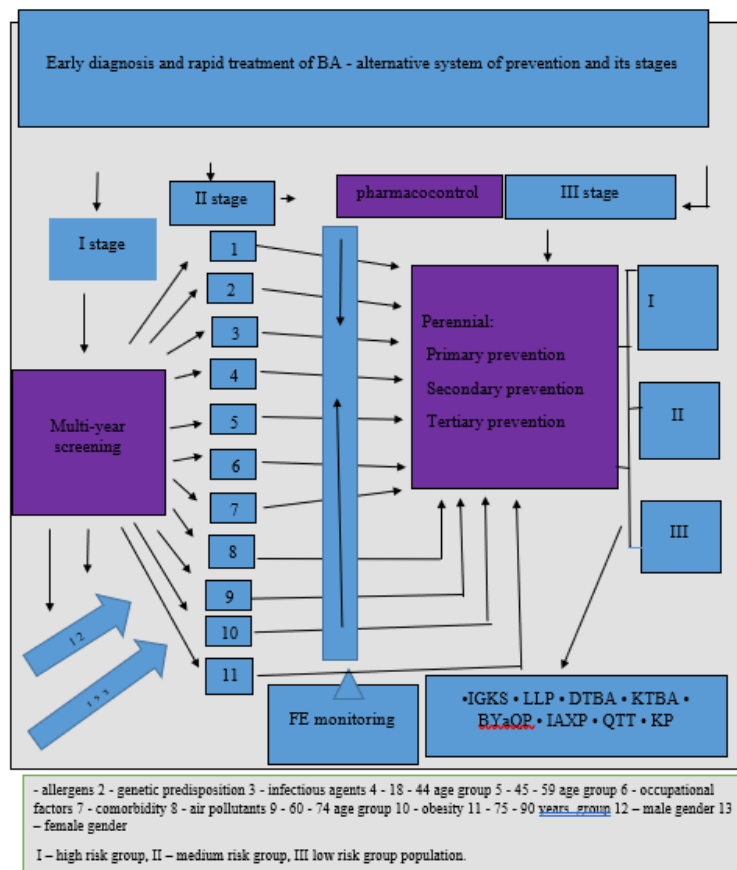
In contrast, it is confirmed that the relative probability risk of nonatopic BA in the population of Andijan increases to a high level in the case of the following risk factors: age group 18-44, genetic predisposition, allergic factors and infectious agents. origin is also confirmed; 60-74 age group, occupational factors, air pollutants, comorbidity and obesity. Prognostic analyzes confirmed again that the risk of developing NABA at a low level is caused by the following XO effects: 75-90 age group, male and female genders.

The following 10 intrinsic and extrinsic factors are confirmed as RFs that greatly increase the risk of status asthmaticus: male sex, age group 75-90, obesity, age 18-44, allergens, infectious agents, occupational factors, air pollutants, comorbidity and 60-74 age group. Moderate risk is associated with genetic predisposition and the 45-59 age group, and low risk is associated with female gender, in relation to BA.

In the data presented in the available scientific sources, no such analytical conclusions were made in order to give a comparative assessment of the obtained results. However, as confirmed in our research, the creation of directional forecasting tables serves as a basis for the development of an alternative (time-adapted) system for early diagnosis of BA and rapid treatment prevention.

Based on the results of this research, such a scientific strategy will be implemented and a program for the implementation of urgent diagnosis and treatment-prophylaxis of bronchial asthma in valley conditions, aimed at the 18-90-year-old population of the valley, was developed. The program is implemented in three steps, according to our analysis, it will provide the following social results: 1) BA control will be ensured up to 100.0%; 2) pharmacoantiasthmatic therapy/prophylaxis. The effect also reaches 100.0%; 3) 100.0 percent of serious risks of anti-asthmatic therapy confirmed in recent years are eliminated or prevented; 4) Medical, economic and social complications caused by BA or its risk factors are reduced or eliminated from 50.0 to 70.0 percent.

- allergens 2 - genetic predisposition 3 - infectious agents 4 - 18 - 44 age group 5 - 45 - 59 age group 6 - occupational factors 7 - comorbidity 8 - air pollutants 9 - 60 - 74 age group 10 - obesity 11 - 75 - 90 years_group 12 – male gender 13 – female gender

I – high risk group, II – medium risk group, III low risk group population.

1- scheme. Program for the implementation of emergency diagnosis and treatment-prophylaxis of BA in valley conditions.

CONCLUSION

1. In the last 20 years, the characteristics of the origin and clinical course of bronchial asthma in the conditions of the Fergana Valley have changed dramatically. Although the frequency of distribution of all its types has decreased, it is confirmed that the detection indicators are still high when compared at the international level. 78.3% of BA is atopic form (76.3% in men and 79.4% in women), only 21.7% is nonatopic and mixed form.

2. 13 risk factors that have a significant impact on the origin and course of BA in the valley conditions are confirmed (allergens, genetic predisposition to atopy, infectious agents, age group 18-44, occupational factors, comorbidity, air pollutants, age group 60-74, obesity, age group 75-90 , male gender, female gender). 50.0 percent of these factors have increased steadily over the last 20 years, and the prevalence among the 18-50-year-old population is 62.07 percent. During the years of observation, the frequency of their detection increased by 2.2 times

3. .Traditional symptoms of bronchial asthma are confirmed with a significant difference and the following frequencies: expiratory shortness of breath 16.23 percent, wheezing 16.23 percent, cough 24.70 percent, chest congestion 13.60 percent, night symptoms are determined from 28.50 percent. The traditional clinical course increased by 14.5% in women (from 23.89% to 39.43%) and 6.9% in men (from 14.04% to 20.97%) over the last 20 years. In 60% of female patients and 80% of male clients, it is confirmed that the disease has an unusual clinical expression, and asthmatic comorbidity draws attention as the leading cause of this.

4. Every fifth patient has bronchial asthma on the basis of comorbidity. In the comorbidity of asthma, the contribution of arterial hypertension and chronic obstructive pulmonary disease is confirmed by 70.8 percent. The contribution of other diseases (QD2, UIK, pneumonia) is determined at low frequencies.

5. In the 20-year pharmacoepidemiological monitoring study, the following was confirmed: • 8 different drugs (IGKS, ALP, DTBA, QTBA, BYaQP, IAXP, QTT, KP) are used in urgent treatment of BA, and they correspond to 99.0% of international modern clinical recommendations; • In "key cases" of BA, deviations from the compliance level of urgent-scheduled pharmacoantiasthmatic therapy are confirmed from 78.5% (using ALP) to 27.5% (using QTBA)

6. .The developed prognostic table allows determining the risk of developing bronchial asthma among the population with a high degree of probability, taking into account the influence of endogenous and exogenous risk factors. The "relative risk of the origin of BA" is extremely high for allergens, AIM, infectious agents, and the 18-44 age group, moderate for the 60-74 age group, occupational factors, air pollutants, comorbidity, and obesity, and low for 75- It is confirmed in the age group of 90, in men and women.

7. Based on the results of a 20-year epidemiological study, the "Program for urgent diagnosis and treatment-prevention of bronchial asthma in valley conditions" is confirmed to be highly effective; • provides 100.0 percent asthma control; • increases the effectiveness of pharmacoantiasthmatic therapy/prophylaxis up to 100.0%; • Reduces or eliminates BA-related losses from 50.0 percent to 70.0 percent.

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Annotations

It has been confirmed that currently bronchial asthma (BA) has become a more important problem for scientific and practical medicine. Revealing the current aspects of the development of BA and developing the scientific basis for improving rapid treatment and prevention, taking into account the epidemiological mechanisms of its formation, is one of today's urgent issues and is considered a necessity.

Key words: bronchial asthma, epidemiology, clinico-epidemiological monitoring, improvement of treatment, rapid diagnosis.