Prevalence, Risk Factors, Pharmacoepidemiology and Innovations Prevention of Bronchial Asthma

By Ganiev Bakhtiyor Sobirjonovich

Abstract- Bronchial asthma is a multifactorial disease. Industrial chemical compounds are also included in the list of causative factors of bronchial asthma. The contribution of industrial allergens to the formation of bronchial asthma is undeniable. In studies carried out in conjunction with professional pathologists, children were found to be sensitized to industrial allergens (nickel, chromium, formaldehyde, etc.), which contribute to the formation of bronchial asthma. Determining, however, is the presence of atopy.

The purpose of this review article is to objectively consider the degree of knowledge of the prevalence and risk factors for the formation of bronchial asthma, to give a reasonable assessment of the published works of domestic and foreign researchers, to draw logical conclusions from the research done.

The search for literary sources was carried out using the bibliographic databases web of science, SCOPUS, DBLP, and MEDLINE. When selecting sources, they paid attention to experimental articles, literary reviews, and the number of their citations over the past year.

Keywords: respiratory diseases, bronchial asthma, prevalence, risk factors.

GJMR-K Classification: NLMC Code: WF 553

Strictly as per the compliance and regulations of:

© 2021, Ganiev Bakhtiyor Sobirjonovich. This is a research/review paper, distributed under the terms of the Creative Commons Attribution-Noncommercial 3.0 Unported License http://creativecommons.org/licenses/by-nc/3.0/, permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.
Prevalence, Risk Factors, Pharmacoepidemiology and Innovations Prevention of Bronchial Asthma

Распространённость, факторы риска, фармакоэпидемиология и инновации в профилактике бронхиальной астмы

Ganiev Bakhtiyor Sobirjonovich

Abstract- Bronchial asthma is a multifactorial disease. Industrial chemical compounds are also included in the list of causative factors of bronchial asthma. The contribution of industrial allergens to the formation of bronchial asthma is undeniable. In studies carried out in conjunction with professional pathologists, children were found to be sensitized to industrial allergens (nickel, chromium, formaldehyde, etc.), which contribute to the formation of bronchial asthma. Determining, however, is the presence of atopy.

The purpose of this review article is to objectively consider the degree of knowledge of the prevalence and risk factors for the formation of bronchial asthma, to give a reasonable assessment of the published works of domestic and foreign researchers, to draw logical conclusions from the research done.

The search for literary sources was carried out using the bibliographic databases web of science, SCOPUS, DBLP, and MEDLINE. When selecting sources, they paid attention to experimental articles, literary reviews, and the number of their citations over the past year.

Keywords: respiratory diseases, bronchial asthma, prevalence, risk factors.

1. Introduction

According to definition [1] the bronchial asthma (BA) is the heterogeneous disease which is characterized by chronic inflammation of airways, existence of respiratory symptoms, such as the whistling rattles, an asthma, congestion in breasts and cough which vary on time and intensity and are shown together with variable obstruction of airways. Despite the long-term history of study, progress in treatment, control of a disease, epidemiological indicators demonstrate that the incidence of this pathology only grows. Therefore, the purpose of this work was to analyze and give characteristic of prevalence, to risk factors, a pharmakoepidemiology and innovations in prevention of bronchial asthma on the basis of modern literary these and relevant world manuals on treatment and diagnostics of BA.

Bronchial asthma– the non-communicable disease having the global importance caused by serious consequences for public health care, for health of children and adults and also high lethality in especially hard cases [2]. According to data of a number of researchers, asthma takes the 16th place among basic causes of disability. As of 2014the world, there were about 300 million people having this illness and, according to some forecasts, by 2025 this figure will probably increase by 100 million people [3]. In the same report, it was specified that the prevalence of asthma is higher in the countries with high-income level whereas mortality from it is more in the countries with low and average income levels [3].

The general incidence OH in absolute numbers in the Republic of Uzbekistan for 2016-2017 is presented on graphics.
The fig. 1 The general incidence OH in the Republic of Uzbekistan for 2016-2017 red of different age groups [www: ssv.uz]

However, dynamics of incidence on OH is better traced in fig. 2 where the general incidence on 100 thousand population in the Republic of Uzbekistan among different age groups for 2016-2017 is shown.

The fig 2. The general incidence OH in the Republic of Uzbekistan for 2016-2017 red of different age groups. [www:ssv.uz]

Certain positive dynamics that consists in decrease in incidence on OH for 2017 in comparison with 2016 is displayed also in decrease in quantity for the first time of the revealed cases of this disease for the same period in the Republic of Uzbekistan (The fig 3).

The fig. 3 Quantity for the first time of the revealed cases OH in the Republic of Uzbekistan for 2016-2017 red of different age groups [www:ssv.uz]
Figure 4 Total incidence of Bronchial asthma in absolute numbers in the Regions of the Fergana Valley of the Republic of Uzbekistan in 2016-2019 among different age groups. [www:ssv.uz]

Figure 5 Total incidence of Bronchial asthma in absolute numbers in the Regions of the southwestern regions of the Republic of Uzbekistan for 2016-2019 among different age groups. [www:ssv.uz]

Today precisely established there is a number of risk factors of asthma though, it is necessary to notice that researches in this area are still conducted. The significant role among the factors contributing to the development Oh is allocated for genetic risk factors. Today contain eight positions of genes with which connection about development Oh is established: ADAM33, DPP10, PHF11, NPSR, HLA-G, CYFIP2, IRAK3 and OPN3 [4]. Moreover, there are more than 100 candidate genes that are investigated by the full-genomic analysis (GWAS) which were connected with asthma and related phenotypes. These genes and their loci are entered in the public GWAS database [4, 5].

The following important risk factor–environmental pollution and pollutant. One research conducted in Europe showed that pediatric cases of asthma and 15% of all exacerbations of asthma at children can beto carry 14% to air pollution. Authors
suggested that influence of pollutant leads to oxidizing injury of airways that strengthens inflammation, remodeling of a bronchial wall also increases sensitivity to Exo-allergen through hyper activation of Th2 and Th17 [6]. Some authors connect provocative environmental impact on attacks OH with epigenetic influence [7].

Proved negative influences of tobacco smoke on aggravations OH. In one research children whose parents smoked during pregnancy were studied and found out that risk of developing asthma increased if one or both parents smoked [8]. According to data of Burke H et al, passive smoking at children’s age also increases risk of developing asthma approximately by 20% [9]. On the other hand, a number of researches showed that smoking at adults, both active, and passive brings to the high level of development OH at such people [10].

A number of scientists give an important role among risk factors of development OH to a condition of an intestinal micro biota. It is supposed that influence of microorganisms in the early post-natal period is protective because of stimulated immunological changes under the influence of endotoxin, muramidic acid and extracellular lipopolysaccharides [11]. The same researchers showed that influence of high levels of microorganism’s leads to activation of nonspecific congenital immunity that most likely finally will lead to generation of regulatory T-cells and stimulation of unresponsiveness [11]. Other scientists showed that there is an invariant stimulation of NK cells. On mouse models, it was shown that at healthy mice collected invariant NK cells that probably leads to strengthening of inflammation and reaction of airways to allergens [12].

Lately the interest of researcher’s vitamin D role as risk factor OH increased. It is established that vitamin D can also influence remodeling of airways by change of epithelial cells and alveolarmacrophages and changes a transcription them pro-inflammatory cytokines. Models on animals the hypovitaminosis of D led strengthening of remodeling of airways, an eosinophilia, decrease in level of T-regulatory cells, the raised expression of NF-KB and the increased level of pro-inflammatory cytokines [13]. Researchers claim that similar mechanisms can explain the established connection between hypovitaminosis D and bad indicators of ventilation of the lungs (OFV1 - Volume of forced exhalation in one second; FVC- Forced vital capacity of the lungs)(OFV1 and FVC) at children and adults and the fact that hypovitaminosis of D at the pregnant woman is connected with increase in frequency of rattles at children [13].

Today, step therapy OH, depending on severity is accepted. The first step use of monotherapy beta 2 - agonists of short action, the 2nd – use of low doses of inhalation glucocorticosteroids (IGKS) or antagonists of leukotriene receptors (ALTR). Both of these types of therapy are performed at OH light severity. Therapy of the 3rd step – the doubled low doses of IGKS in the form of monotherapy or small doses of IGKS together with ALTR (treatment for medium-weight controlled OH). Therapy of the fourth and fifth step means already high doses of IGKS with ALTR combination, drugs of anti-IgE – therapies or GKS in low doses is system. This treatment is performed in cases heavy uncontrollable OH. However, a number of researches shows that in nearly a half of cases insufficiently effective basic therapy takes place; drugs of the choice are IGKS that is regulated by the international recommendations. On the other hand– in 14% of cases the basic anti-inflammatory therapy cannot correspond to the recommendations of the choice of drug, a dosage and way of its delivery to Airways [14, 15]. In other research, some discrepancy by ideas of doctors of the most effective remedies of therapy OH and real appointments was also established. It is shown that the most effective, according to doctors and in terms of evidential medicine, drugs were appointed, as it is not strange, rather rare. First, it belongs to the combined drugs (IGKS + beta 2 - agonist’s long action) and to modern powder inhalers. A vital issue, according to authors, still is insufficiently intensive use of IGKS, beta 2 - agonists long action and the big specific weight of system GKS[16].

Proceeding from the previously mentioned it is logical to assume that the important place is taken by preventive approach in control of a course OH. Today VOOZ is accurately defined a package of measures for primary, secondary and tertiary prevention of this disease both at children, and at adults. Distinguish the factors defining the prenatal strategy, preventive factors defining the feeding of children, factors affecting risk of development OH at children and the factors affecting risk of development OH at adults from them. Moreover, a number of measures for prevention OH at all age groups is defined [17]. Some scientists, among other things, pay special attention in preventive approach to this disease to a condition of an intestinal micro biota, assessment of use of prebiotics, probiotic, bacterial lysates at people who are in risk group on development OH. [17, 18]. There are also vitamin D role researches in prevention OH [19], vaccination against some infectious diseases [20]. In general, while this subject is not strongly popular among the scientist and the majority of researches describe a role of the “classical”, recommended VOOZ of measures of prevention [17].

II. Conclusion

Today the prevalence OH is a serious problem, not only from medical, but also from the social and economic point of view. In spite of the fact that problems of treatment, prevention it is still studied many strategy
of primary prevention did not show in randomized clinical trials of sufficient proofs in order that they were used in clinical practice. It will predetermine further relevance of studying a pharmacoepidemiology and measures for primary secondary and tertiary prevention of this disease.

**The List of the used Literature**


16. Cheeses, V.V. (2016). Ideas of epidemiology and opportunities of prevention of bronchial asthma at the present stage. Allergology and immunology in pediatrics, (3 (46)).

