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ENVIRONMENTAL CONDITIONS AS A RISK FACTOR FOR THE SPREAD OF ALLERGIC DISEASES IN KARAKALPAKSTAN

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ANNOTATION

The article presents the results of a study of the prevalence of allergic diseases among the population of the Republic of Karakalpakstan. It is shown that the highest incidence of allergic rhinitis (immediate type allegopathology) is detected among the population of the III ecological group (northern zone) in areas with high aerogenic pollution - Kungrad, Muynak and Takhtakupyr regions.

KEY WORDS: ***Karakalpakstan, allergic diseases, environmental factors, prevalence.***

Currently, in the world, along with the development of industry and agriculture, there is an increase in environmental impact and an increase in morbidity due to environmental pollution. Environmental protection in order to reduce the negative effects of environmental factors on public health remains a fundamental task of environmental research. To solve this problem, an analysis between the ecological state of the environment and the level of public health, an integrated ecological approach in assessing information about the state of the environment and the pathological processes occurring in the body is of great scientific and practical importance.

At present, numerous studies are being carried out in scientific research centers around the world to develop a methodology for diagnosing environmentally caused diseases, as well as improving the health of the population and its environment. An increase in allergic diseases was revealed, primarily due to the degree of influence of biotic and abiotic exogenous environmental factors, namely, an increase in the concentration of allergens, pollution of the atmosphere, water, soil, residential and industrial premises, and exceeding regulatory standards.

The problem of allergies and allergic diseases has occupied one of the key places in medicine in recent decades. Statistics inevitably captures a significant increase in allergopathology, which is, apparently, a logical consequence of a radical change in a person's lifestyle. The avalanche process of urbanization, the rapid development of industry and the associated pollution of the environment led to a massive "chemical aggression" on the human body [78, p.53; 123, p.317-340; 160, p.239-246].

Allergic diseases have become a serious problem for mankind and, according to the WHO forecast, in the 21st century they will come out on top in terms of prevalence in the structure of diseases. Every year, about 35% of the world's population seek medical help with clinical manifestations of allergies [3, 6, 7].

Allergic diseases and especially diseases of the respiratory tract are environmentally dependent diseases, since the phenotypic realization of hereditary

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predisposition to them is always carried out under the influence of environmental factors. Epidemiological studies conducted in different countries show that bronchial asthma has now reached 5-9% among the adult population and 8-12% among children; hay fever (P) - about 20% of the population; allergic dermatoses - 10-12%, in children - from 5 to 15% [1, 4, 5, 7].

Tracing the dynamics of the prevalence of allergic diseases in the territory of the Republic of Karakalpakstan, according to official statistics, a certain upward trend in diseases such as allergic rhinitis and emphysema has been revealed.

The analysis made it possible to present the dynamics of the incidence of allergic pathology among the population of Karakalpakstan. Thus, it was found that the maximum incidence of allergic rhinitis among the population was noted in 2008-2009, after which the rate slightly decreased. The minimum level was registered in 2002. From 2002 to 2009, the indicator increased by almost 2.5 times. Apparently, during this period there was a sharp increase in pollution in environmental objects in the surveyed area.

Analysis of the dynamics of the incidence of bronchial asthma (Fig. 8) also shows the periods of increase and decrease in the incidence of bronchial asthma among the population of Karakalpakstan. The maximum level was noted, as well as allergic rhinitis in 2001, 2008. The minimum level was registered in 2002-2003. Further, we revealed a trend towards an increase in the incidence of emphysema among the population of Karakalpakstan during the study period.

Thus, since 2001, there has been an increase in the incidence of emphysema up to 2008-2009. Since 2010, a sharp decrease in the incidence rate has been revealed (to 5.3 per 1000 population), after which there is again a stable increase in this indicator. At the same time, we also considered the dynamics of the incidence of allergic rhinitis among the population of Karakalpakstan, depending on the territorial differentiation for 2010-2017.

The analysis made it possible to reveal that the highest incidence of allergic rhinitis (immediate type allegopathology) is detected among the population of the III ecological group (northern zone) in areas with high aerogenic pollution - Kungrad, Muynak and Takhtakupyr regions. Data exceeding the control at $\alpha=0.05$ on the general incidence of allergic rhinitis are also detected in residents of groups I and II (southern and central zones, respectively) in conditions of moderate environmental pollution.

It has been established that under the influence of various harmful substances, along with violations of some mechanisms of nonspecific resistance of the organism, the indicators of humoral and cellular immunity change [1]. Various chemical allergens cause the development of bronchial asthma, urticaria, allergic lesions of the upper respiratory tract, allergic dermatitis and some other diseases.

The mechanism of action of allergenic chemical and natural compounds has not been fully elucidated. According to a number of experts, low molecular weight substances combine with tissue proteins, which creates an allergen depot in the body. Further, the allergen is captured by macrophages or other phagocytic cells, which in turn interact with lymphocytes, causing an immune response [3, 4, 6].

Thus, the assessment of the correlation dependences of incidence with various pollutants of the atmospheric air of the Republic of Karakalpakstan made it possible to identify a correlation dependence, in order of significance, with the concentrations of carbon monoxide, nitrogen oxides, and sulfur dioxide. There is also a direct relationship between allergic morbidity and an increase in the number of vehicles in the central regions of the surveyed territory of Karakalpakstan.

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