

HISTORY OF NOSOGEOGRAPHICAL RESEARCH AND ITS SCIENTIFIC AND THEORETICAL ISSUES

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Annotation. The article briefly covers the history of the formation and development of nosogeography, which is considered the main direction of medical geography. Also, the main issues of nosogeography or the geography of human diseases, the general geographical laws of the spread of human diseases, the nosocomplexes and nosoareas of individual diseases, and the features of researching their dynamics are also described.

Key words: nosogeography, public health, nosocomplex, nosoarea, nosogeocomplex.

Introduction. The development of the economy in the world has a great impact on the quality of life of the population, as a result, people continue to live longer and live more healthy years. Global life expectancy increased from 66.8 years in 2000 to 73.3 years in 2019, and healthy life expectancy increased from 58.3 to 63.7 years. However, inequities in the health care system create disparities in life and health. Both life expectancy and healthy life expectancy are at least 10 years lower in low-income countries than in high-income countries. Overall increases in life expectancy and healthy life expectancy reflect dramatic changes in mortality and morbidity. Indeed, since 2000, inequalities in mortality and morbidity profiles have been a major driver of life expectancy and healthy living. In the last 20 years, progress has been made in the field of maternal and child health, in particular, the global maternal mortality rate and the under-five mortality rate have decreased by approximately 40% and 60%, respectively [14].

At present, the problem of environmental pollution, issues of environmental safety of the population and regions are gaining urgent importance in the world. According to the World Health Organization, 24% of all diseases and 23% of deaths are caused by preventable environmental factors. "Negative exogenous factors

around the world cause the death of more than 13 million people every year, and one out of three children under the age of five get sick" [15].

Globally, regionally and locally, geographical differences in life expectancy and morbidity are associated with regional variability of natural and socio-economic factors that negatively affect the health of the population. The current direction of "Environment-health" relations, not only with natural conditions, but also with environmental factors, as well as with the need to determine the causes of the connection between population diseases and the environment, includes the medical-geographical situation in the world and in its specific regions. creation of reflective maps, development of medical-geographic forecasts for the country and their regions, and as a result of this, it is connected with taking into account regional differences in population morbidity in the organization of the medical service system [12].

Discussion and result. It is known that nosogeography, or the geography of human diseases, is one of the main components of medical geography, which studies the diseases spread around the globe, the causes and laws that cause them. Since the emergence of medical geography, nosogeography has been formed as one of the main directions of this science. Scientific research in this regard began in the 18th century. The main part of the conducted researches is focused on some human diseases, in particular infectious-parasitic diseases. These studies emerged as a separate direction of medical geography at the beginning of the 18th century. In addition, the necessity of scientific cooperation with other fields of medicine (epidemiology, parasitology) was felt in carrying out research in this regard, that is, in determining the features of geographical distribution of diseases.

Over time, special theoretical and practical studies were carried out to determine the causes of the occurrence and spread of diseases. For example, in the period of the former Union, these studies were carried out within the framework of parasitology, landscape epidemiology and other scientific directions. The main research in this regard was carried out by Y.N. Pavlovsky, K.N. Skryabin, G.Ya. Zmeev, V.Y. Podolyan. It is also reflected in the map and atlases [5, 2, 3, 11, 13].

The medical geography section of the XVIII International Congress of Geography played an important role in solving the geography of human diseases. This congress was held in Rio de Janeiro in August 1956. At the Congress, the International Society of Pathological Geography put forward the idea of studying "the relationship between diseases and the geographical environment". The International Cancer Alliance was engaged in studying the geographical spread of cancer.

During the time of the former Union, great attention was paid to conducting researches related to medical geography. An example of this is the scientific conference on the state and future of medical geography held in Leningrad (now St. Petersburg) in 1962. The second convention (conference) was held in this city in 1965, and it was devoted to the issues of public health and geographical environment. The third conference (Leningrad, 1968) directly discussed the geography of human diseases, and the fourth (1973) discussed the problems of medical geographic cadastre [6]. The next scientific conference was held in Kirishi, Russia in 1979 and was devoted to medical geographic regionalization and its forecasting. At the meeting in 1983, problems related to the theoretical foundations of medical geography were considered.

It is worth saying that the main issue of nosogeography is to determine the general geographical laws of the spread of diseases in humans, to study the nosocomplexes and nozoareas of individual diseases, and their dynamics. Therefore, nosogeography is a special direction of medical geography that has its own research object. He also deals with the condition of certain diseases in the past and in different periods. Because the evolution of the geography of diseases, the complete disappearance of some diseases, on the contrary, the spread of some diseases over wide areas, means that such research acquires an important theoretical importance.

Scientific research aimed at improving the health of the population and identifying unfavorable conditions of the natural environment is conducted in the world's leading scientific centers and higher education institutions, including the University of North Carolina (USA), Harvard University (USA), Institute of

Geography (Great Britain), Oxford University (Great Britain), Moscow State University (MSU, Russia), St. Petersburg Military Medical Academy (S-PHTA, Russia), Siberian Department of the Institute of Geography of Siberia and the Far East, Institute of National Economy Forecasting of the Russian FA (Russia) is being conducted.

As a result of research conducted in the world to improve the health of the population and a number of its indicators, a number of scientific results have been obtained, including the following: methods of monitoring the impact of climate on human health have been developed, nosogeographic maps of the world's leading natural foci diseases have been compiled (USA, University of North Carolina); theoretical problems of medical ecology and human ecology are identified (USA, Harvard University); alternative options for improving the quality of the healthcare system have been developed (Great Britain, Oxford University); global changes of the natural environment were analyzed and a system of environmental control was developed (Great Britain, Institute of Geography); the effects of natural outbreak diseases and natural and socio-economic factors on the human body have been determined (Russia, St. Petersburg Military Medical Academy, Sochava Institute of Geography, Siberian Branch of RFA); developed medical-geographic modeling, theory and methodology of medical geography (Russia, MSU); medical-geographical forecasting was carried out and medical-geographical and ecological maps were compiled (Geographical Institute of RFA, Russia).

In the world, a number of researches are being carried out in the field of medical geography, including in the following priority areas [12]: - determination of the influence of climatic and geographical conditions on the health of the population and the creation of medical geographical maps; - development of medical-geographical forecasts for underpopulated, economically weak developed regions; - forecasting the impact of changes in geosystems that occur as a result of human changes in nature on the health of the population and its morbidity.

Currently, nosogeography as an important direction of medical geography deals with a number of issues. Including:

- studies the theoretical and methodological foundations of the geography of human diseases;
- assesses the impact of natural and socio-economic factors on the emergence and geographical spread of human diseases;
- analyzes the laws of the geography of certain diseases and creates relevant (thematic) nosogeographic maps;
- nosogeography researches, regionalizes regional complexes and nozoareas of various diseases occurring in humans;
- based on the assessment of the Nosogeographical situation, forecasts the main directions of its improvement, etc.

The analysis shows that studies in the field of nosogeography are primarily focused on infectious diseases that occur in humans. In the former Union, the main part of these studies was conducted on natural outbreaks, transmissible diseases and helminthiasis. In this regard, great scientist and academician Y.N. Pavlovsky made great contributions. He created the scientific doctrine of the "hotbed" of diseases found in certain natural landscapes, characteristic and suitable for them (Pavlovsky Y.N., 1964) [7]. Y.N. Pavlovsky's doctrine of natural foci of infectious diseases is based on the regional unity of warm-blooded animals and arthropods that harbor parasites in certain natural conditions and diseases transmitted by humans.

Uzbek geographers, ecologists, experts working in the fields of medicine, biology and hygiene recognize the need for complex and systematic research in this regard - nosoecology (R.M. Razzakov, A.A. Rafiqov) , O.A. Ataniyazova, A.S. Soliyev, N.Q. Komilova, T.I. Iskandarov). For example, in 2012, N.Q. Komilova defended her doctoral dissertation on the topic "Territorial analysis of the medical geographical conditions of Uzbekistan and population health problems" and laid the foundation for the development of the science of medical geography in Uzbekistan. Geographical problems of population health, urbo-ecological research Kh.T. Tursunov (1994), I.R. Turdimambetov (2005, 2016), M.O. Hamroyev (2009), N.J. Mukhammedova (2019), A.Kh. Ravshanov (2020), etc. researched by.

In recent years, research in this direction has been carried out not only on infectious diseases, but also on non-infectious diseases. As a result of practical research in the field of nosogeography, all types of diseases in humans can be divided into three groups:

- 1) infectious and parasitic diseases;
- 2) non-infectious natural-endemic diseases;
- 3) other non-infectious diseases and poisonings.

In general, various diseases form a large group of diseases. Natural or socio-economic factors play a key role in their creation. Diseases in humans occur only when the interaction and balance between external environmental factors and the organism is disturbed. Therefore, studying the influence of endogenous or exogenous factors that cause this is of great practical importance. Nervous and mental disorders, infections and intoxications, metabolic disorders, hereditary or defects in the development of certain organs, and other endogenous factors are included. Exogenous factors include social and household factors, inconveniences in working conditions, high and low temperature [11, 13, 16].

It is known that territorial complexes (complexes) play an important role in economic and social geography and geography in general. For this science, the complex approach, the determination of various territorial systems, territorial composition and territorial complexes is of great methodological importance. From this point of view, it is necessary to study such complexes in the geography of human diseases - nosogeography.

Nosogeographical complexes or nosogeographical complexes are a territorial combination and unity of various diseases that occur in a certain natural geographical and socio-economic, social environment (space), under their influence. In other words, the main disease that occurs on the basis of a certain landscape-ecological and social environment and the unit of diseases related to it or caused by it is called a regional set of diseases. This theoretical idea is based on the ideas of regional complexes and energy production cycles created by Chicago medical scientists in human ecology and economic-social geography.

Territorial complexes of diseases are not a nosogeographic region, but its basis. Because in any nosogeographic region, there are other diseases that occur separately in addition to the regional set of diseases. As the landscape-ecological and socio-geographical factors of the regions influence the pathological processes, their study is theoretically important. So, it can be said that the regional complex of diseases is methodologically a method of analysis of nosogeographical regions and at the same time forecasting. Such complexes are usually associated with natural geographic and economic landscapes and a specific sociogeographical environment. At the same time, the role of biogeocenoses in the emergence of diseases in the form of a complex is also great. When studying nosogeocomplexes, first of all, it is necessary to understand the direct or indirect influence of the conditions that created them. Such socio-geographical complexes are a whole system, the change of one part of which changes the other part. Therefore, the process of studying nosogeocomplexes requires extensive practical and theoretical research. For example, endemic goiter is caused by iodine deficiency in water and food products in the human body. Enrichment of food with iodine is aimed at protecting against this disease [8, 9, 10, 12, 13].

Speaking of nosogeocomplexes, it is appropriate to say that the interaction between the external environment and the organism is simple or direct, and sometimes depends on three or more factors. Many transmissible and parasitic diseases (leishmaniasis, malaria, etc.) can be found in such regional complexes. It takes at least 20-30 years for changes to occur in nosogeocomplexes. With the passage of time, some types of diseases decrease, and some new forms appear. In particular, in recent years, the types of tuberculosis that cause death have been disappearing. Infectious intestinal infections, especially amebiasis and giardiasis, are increasing significantly.

Noncomplexes can be divided into the following groups:

1. Climate-related anomalies - in this case, the influence of air temperature and humidity, atmospheric pressure, etc. on their formation and development is primary.

2. Hydrogen anomalies - surface water sources, including canals, swamps, rivers or lakes, are recognized as a leading factor in the emergence and spread of diseases (malaria, cholera, etc.).

3. The disease-causing effect of underground water on hydrogeogenic anomalies plays a key role, for example, diseases of the kidney, excretory system, diseases caused by metabolic disorders.

4. Hemogenic anomalies - the geochemical composition of landscapes, including the formation of one or another disease (endemic goiter, urolithiasis, etc.) related to the deficiency or excess of some microelements.

5. Biogenic disorders are a complex of diseases that are caused by living organisms (viruses, bacteria and other microorganisms; insects, rodents, etc.) and are caused by them.

6. Socio-economic disorders - mainly in industrial or transport nodes, in areas with high demographic pressure. Heart, blood vessel, nervous system, malignant tumor diseases are more common in such anomalies.

It is appropriate to divide natural nosogeographic nosocomplexes into two types according to their structure. These are: non-zoocyclic and regional structures. Territorial structures, in turn, are further divided into two (zonal and areal forms).

Studying their nosoareas is also important in determining the causes and laws that cause diseases. The distribution of diseases in a certain area is their range. As we mentioned above, the term "area of diseases" or "hotbed" was first explained in the works of the Russian scientist Y.N. Pavlovsky. It is these areas that should be the main object of nozogeographic research [4].

When studying the distribution of human diseases, it can be seen that some diseases are spread in all parts of the globe, and some are spread along a certain border or in a certain region. In nosogeography, wide-ranging, large-area diseases are called eurychore diseases (from the Greek "euris" broad, "horos" shell, area). Diseases that spread only in limited areas are called local or "stenochor" (Greek "stenos" narrow, "horos" shell, area) diseases. It should be noted that almost all

infectious diseases have local (native) areas. Most of the non-infectious diseases are eurychore diseases [8, 9, 10].

The study of the distribution of nosoreal types and the laws in their dynamics serves as a theoretical and practical basis for determining the role of one or another nosoreal in the acceleration of population disease. Nosoareas can be divided into two main groups, i.e. dense or scattered nozoareas. In turn, scattered areas are divided into types that spread within the nosogeographic focus and along a straight line. These areas are also called widespread areas, that is, in such areas, diseases are widespread throughout the entire area. These diseases are a product of the typical natural and socio-economic conditions of a certain region.

Diseases specific to endemic areas include many natural foci and infectious diseases, as well as nosological forms that occur in the human body under the influence of various natural factors. Some diseases spread in the form of a straight line in some parts of the regions according to their geographical features. For example, diseases spread on the shores of rivers or lakes, in the direction of surface communication routes, are among them.

Scattered ranges are characteristic of human diseases that occur within separate limited areas, including endemic smallpox. In general, the term "fireplace" is often used in nosogeography. "Focus" means the places where an infectious disease can occur or where the disease has occurred, and they occur in a natural geographic (in certain types of landscape) or social geographic environment (densely populated areas).

According to L.I. Gromashevsky, the center of an infectious disease is defined as the place where the source of infection is located and the area around it where the infection can spread from this source in this specific situation. The spread of diseases from this source also reminds of the idea of "diffusion of news" created by the Swedish scientist T.Hegerstrand in social geography [2, 13].

Natural processes play an important role in the transmission of infection, in particular, open water bodies are more polluted with running water and cause the spread of typhoid epidemics spread through water during the cold season. If people

spend a lot of time indoors in winter, this time of the year leads to the transmission of respiratory infections, while walking around in warm clothes without observing the rules of personal hygiene causes the proliferation of lice, the spreaders of typhus and typhus [1].

Conclusion. Social factors influence the course of the epidemic process more than natural factors. The social factor refers to all the conditions of the population's life: residences, the number of people living in them (density), sewerage, the condition of household facilities, the material well-being of the population, the composition of their food, the level of sanitary culture, migration processes, the type and conditions of work of the population, health the status of the storage system and others are understood. In addition, the analysis of the regions from the point of view of the nosogeographical situation in medical geographical research also has a deep meaning. In our opinion, a nosogeographic situation or situation is, first of all, the mortality rate of the population in a certain place or region, including the child mortality rate, the average life expectancy and the general morbidity rate, the death rate of certain groups of diseases. It is characterized by the presence of foci or areas. The nosogeographic situation, in turn, is closely related to the demographic and ecological situation. From this point of view, identification and assessment of the nosogeographical situation is of great importance in social geographical research.

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