UDC 91:504; 911.3:61 *https://doi.org/10.17721/2308-135X.2021.65.34-38*

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THE ROLE OF ENVIRONMENTAL FACTORS IN THE EMERGENCE OF CARDIOVASCULAR DISEASES

Aim of the research is to study the role of environmental factors, economic sectors, the development of technology in the occurrence of diseases.

Results: Result of the research, the role of environmental events, namely physical, chemical, biological, socio-cultural factors in the development of diseases was investigated. In particular, the lack of toxic substances in the body is a direct cause of cardiovascular disease. The emergence of diseases such as cardiac arrhythmia, ischemic heart injury, cardiomyopathy, peripheral artery occlusion, coronary artery disease, hypertension, etc. is always relevant today. The most common cause of selenium deficiency is an element that occurs naturally in the soil and has an antioxidant effect, passing into the body through food and drinking water..

The article explains that epidemiological and clinical observations in the development of cardiovascular diseases are influenced not only by the main risk factors and genetics, but also by environmental factors. Experts have shown that minerals or chemicals in the soil play an important role in the development of cardiovascular disease. In particular, physical and chemical pollution of the environment increases the risk of cardiovascular disease. Many studies have linked the effects of chemicals to coronary heart disease, cardiomyopathy, and arrhythmias. Chemicals, especially arsenic, lead, cadmium, various pollutants and solutions, pesticides, play an important role in the development of cardiovascular diseases. This depends on the strength of the chemicals entering the body and the effectiveness of the body's defense mechanisms, as well as symptoms such as the duration of exposure. In places subject to prolonged exposure to chemicals, methyl chloride can also cause acute toxic effects such as acute myocardial infarction.

Scientific novelty: As a result of the research, the role of environmental events, namely physical, chemical, biological, socio-cultural factors in the development of diseases was investigated.

Keywords: cardiovascular diseases, clinical observations, ultravioletrays, acute toxicity, sunlight, virus

УДК 91:504; 911.3:61 *https://doi.org/10.17721/2308-135X.2021.65.34-38*

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РОЛЬ ЭКОЛОГИЧЕСКИХ ФАКТОРОВ В ПРИЧИНЫ СЕРДЕЧНО-СОСУДИСТЫХ ЗАБОЛЕВАНИЙ

Целью исследования является изучение роли факторов окружающей среды, секторов экономики, развития технологий в возникновении заболеваний.

Результаты. В результате исследования исследована роль экологических явлений, а именно физических, химических, биологических, социокультурных факторов в развитии заболеваний. В частности, недостаток токсичных веществ в организме - прямая причина сердечно-сосудистых заболеваний. Возникновение таких заболеваний, как аритмия сердца, ишемическое повреждение сердца, кардиомиопатия, окклюзия периферических артерий, ишемическая болезнь сердца, артериальная гипертензия и др. Сегодня всегда актуально. Наиболее частой причиной дефицита селена является элемент, который естественным образом встречается в почве и обладает антиоксидантным действием, попадая в организм с пищей и питьевой водой.

В статье поясняется, что на эпидемиологические и клинические наблюдения в развитии сердечно-сосудистых заболеваний влияют не только основные факторы риска и генетика, но и факторы окружающей среды. Эксперты показали, что минералы или химические вещества в почве играют важную роль в развитии сердечно-сосудистых заболеваний. В частности, физическое и химическое загрязнение окружающей среды увеличивает риск сердечно-сосудистых заболеваний. Многие исследования связывают действие химических веществ с ишемической болезнью сердца, кардиомиопатией и аритмией. Химические вещества, особенно мышьяк, свинец, кадмий, различные загрязнители и растворы, пестициды, играют важную роль в развитии сердечно-сосудистых заболеваний. Это зависит от силы химических веществ, попадающих в организм, и эффективности защитных механизмов организма, а также от таких симптомов, как продолжительность

воздействия. В местах, подверженных длительному воздействию химических веществ, хлористый метил также может вызывать острые токсические эффекты, такие как острый инфаркт миокарда.

Научная новизна. В результате исследования была изучена роль экологических явлений, а именно физических, химических, биологических, социокультурных факторов в развитии заболеваний.

Ключевые слова: сердечно-сосудистые заболевания, клинические наблюдения, ультрафиолетовые лучи, острая токсичность, солнечный свет, вирус.

Introduction: Man receives and uses from nature what he has for himself - air, water, material goods, raw materials for industry, etc. As a result of the spontaneous use of these resources for hundreds of years, the environment has been subject to change on a global scale. This situation has become even more acute in the period of modern scientific and technical progress. Thus, the increase in the number of the world's population, the expansion of its demand, the steady increase in the use of natural resources, application of new technologies and expansion of production in energy, industry, agriculture, transport, anthropogenic changes in world landscapes, complication and expansion of international economic relations are obvious. These or other factors contributed to the strengthening of the interaction of mankind with the environment and an increase in anthropogenic load (pressure) on the environment surrounding the person.

Recently, the results of anthropogenic activity are manifested as follows: Deforestation, destruction of greenery; Changes in the heat balance and the emergence of global warming as a result of the accumulation of dust and gases in the atmosphere, creating a greenhouse effect; Year by year thinning of the ozone layer and formation of ozone holes; Soil degradation (salinization, erosion, reduced fertility, etc.); Accumulation of harmful substances in the soil, water, air; Rising ocean levels; Destruction of plants and animals (flora and fauna); Increased intensity of harmful physical fields (electromagnetic field, noise pollution, etc.); Increase in the number of natural disasters, referring to those listed in the specified section; Decrease in the quality of life (immune system, genetic system, etc.).

It is impossible to predict the efficient use of nature and its resources, to keep the natural environment suitable for life without knowing the ecological balance, without knowing its complex and interconnected mechanisms. In this regard, the need and interest in solving environmental problems and shortcomings in environmental protection are growing day by day.

Purpose. The main purpose of the research is to study the role of environmental factors, economic sectors, the development of technology in the occurrence of diseases. Because, as we know, the strong development of science, technology, industry, technology, if it leads to a certain increase in the welfare of the population, on the other hand, there is no denying its role in the emergence of diseases.

Analyzes and discussions. In modern times, cardiovascular diseases are in the first place among diseases all over the world. Especially coronary artery diseases are more common. Major risk factors for coronary heart disease (upper age, male sex, hypertension, diabetes, lipid level abnormalities, obesity, physical passivity and smoking use) explain a small part of this problem. However, in a large part of the rest, the risk factors are unknown, but they are shown in many sources, where environmental impacts, toxic substances and various stresses are important causes.

Environmental factors can be divided into natural and artificial factors, as well as the following classes:

1. Physical factors - ionized radiation, electromagnetic radiation, noise, etc.;
2. Chemical factors - heavy metals, toxic chemicals, gases etc.;
3. Biological factors - bacteria, virus and fungus etc.;
4. Socio-cultural factors - socio-economic situation, stress, customs, etc.

Influence of physical factors - The role of ionized radiation in the eemergence of cardiovascular disease is mainly explained by experts as high-level radiation can damage the coronary arteries and heart. Cardiovascular effects of low and moderate (<5R) radiation have also been studied in many studies. Damage to endothelial cells and, in response to the resulting inflammation can lead to delayed cardiac problems, as well as somatic mutation. However, ionized radiation at doses of 0-4 R does not have any effect on the circulatory system [8].

Sun rays and ultraviolet rays - Some cancers due to vitamin D deficiency are associated with autoimmune and infectious diseases as well as cardiovascular diseases. For the absorption of vitamin D, solar radiation is important. The use of protective sunscreen, ageing, pigment structure of the skin, time of day, height are environmental and individual factors that affect the occurrence of vitamin D.

Electromagnetic radiation - it is known that the electromagnetic effect at the level of radiofrequency is detrimental to health. At present, regardless of age, the population faces radiation at any moment. To

protect our health, the study of the possible effects of mobile phones is an important condition. Because, the connection between thalassemia and Brain tumor diseases and EMR spread by mobile phones is likely to be revealed [9].

Very low-frequency electromagnetic fields, which are part of modern life and are spread by any device that works or conducts electricity, are associated with some chronic diseases and thalassemia of childhood. But there is no proven chronic disease and electromagnetic field connection. The main reasons for this are listed above. But this situation is treated as "lack of evidence, can not be evidence of absence". In general, caution should be taken against electromagnetic fields, especially children should be taken away from prolonged exposure.

Noise - an increased risk of hypertension has been found, especially in those exposed to traffic and airport noise at night for long periods of time. Chronic exposure to noise has been shown to be associated with an increased risk of myocardial infarction.

Hot weather conditions - cause high rates of cardiovascular disease and related deaths.

There is no denying the role of air pollution, chemicals such as selenium, methyl chloride, hydrogen sulfide, organic nitrates etc. in the emergence of cardiovascular disease. As chemical effects can cause acute myocardial damage, they can also affect the severity of the current problem. While high exposure to chemicals can cause acute toxic effects, cardiovascular effects are observed as a result of low-level and long-term exposure. For example, even in areas where previously exposed to toxic substances, the prevalence of cardiovascular disease occurs [10].

It is somewhat difficult to diagnose cardiovascular disease on other diseases caused by the interaction of toxic causes with each other by other risk factors. That is why it has not been fully studied to what extent the work and environment toxic substances are effective. The fact that the toxic substance does not directly cause cardiovascular disease, but accelerates the development of other diseases, such as hypertension, complicates the diagnosis of patients. However, 80-90% of cardiovascular diseases for which no direct cause can be found are caused by such effects. It depends on the strength of the action of the chemicals entering the body and whether the body's defenses are effective, with such signs as resistance to exposure. In areas exposed to chemicals for a long time, methyl chloride can also cause acute toxic effects, such as acute myocardial infarction [12].

Mercury and its compounds - available as a catalyst in the production of synthetic industrial substances such as oxalic acid ($C_2H_2O_4$) and vinyl chloride (CH_2CHCl), as sodium hydroxide in the sodium chloride and as an electrode in the production of chlorine, in a wide range of applications such as cosmetics, batteries, fluorescent lamps, medicines, amalgam (toothpaste), solvents, plastics, writing inks, polishes, paints. In addition, mercury, which is used as insecticide and fungicide in the manufacture of thermometers and electric tools, industrial control devices, agricultural drugs, is also used in the paint and paper industry. It can enter the body through air, water, skin and the gastrointestinal tract. For example, as a result of the regular use of agricultural drugs containing mercury, it has an effect on the content of products, from there it also enters the food chain, which causes a wide spread of cardiovascular disease.

Disease caused by the intake of high doses of mercury - for the first time in fishermen living in Minamata Bay of Japan, it has manifested itself with symptoms of the central nervous system and cardiovascular system and is called Minamata disease. The cause of this disease was methyl-mercury. It is also reported that dilatation causes cardiomyopathy, with the main symptoms associated with an effect on the central nervous system (tremor, numbness of the lips, decreased vision, movement and speech disorders) [14].

Arsenic - Arsenic, a heavy metal, can cause skin and lung cancer and nervous system diseases, as well as cardiovascular disease, by polluting industrial wastes, animal feed and fertilizers, especially water.

Pesticides (chemical agricultural drugs) are chemicals that are widely used around the world to increase agricultural productivity. It is necessary to use these chemicals in accordance with their structure, duration of use, rules of use for the ripening of products. They contain arsenic, nitrates, heavy metals and organic phosphates. It causes a wide spread of diseases, including cardiovascular diseases, when the rules of use are not observed [11].

Nitrate - widely used in agriculture, industrial fertilizers are nitrogenous compounds and can cause nitrate accumulation in foods. Especially in vegetables such as carrots, radish, beets, the amount of nitrate and nitride can exceed the norm. Nitrate affects human health by converting into

nitrides and nitrosamines in the human body. A high amount of nitride causes methemoglobinemia, especially in infants and children.

Antimony - The drugs used in the treatment of parasitic infections are antimony-containing. Employees in the mining industry can also be exposed to antimony. Antimony causes abnormalities in humans, it is even able to cause sudden deaths in some patients.

Table 1.

Toxic substances and their effects on the cardiovascular system

Toxic substance	*The way and source of entry to the organism*	*Cardiovascular effect*
Arsenic	Food and water, seafood, pesticides, pigment, anti-rust paint, electrolyzed seafood, ore smelting, production of semiconductors	Cardiac arrhythmia, Ischemic heart Injury. Cardiomyopathy, Peripheral arterial occlusion. "Diabetic foot disease"
Arsine	The gas form of arsenic (arsenic hydride), enters the body through the respiratory tract	Hemolysis and indirect CVS effect Myocardial injury. ECG abnormalities (T wave expansion between V2 and V5)
Antimony	Drugs used in the treatment of parasites contains antimony. Mining workers are also exposed to antimony	Myocardial injury Cardiomyopathy ECG abnormalities
Cadmium Kadmium	It enters from the air through the respiratory tract. Food and water. Cereals, vegetables, meat, fish sewer	Coronary artery disease. Hypertension Peripheral arterial occlusion
Carbon monoxide	Where there is a combustion process in the home and Envirenment Metallurgy, organic synthesis of petroleum products, metal carbonyl production	Coronary artery disease. Myocardial asphyxia. Acute heart attack. Angina, arrhythmia and sudden deaths Arteriosclerosis
Carbon disulfide (CS_2)	Viscose silk production, tire, glue, elekro insulation industry, paint, textile	Coronary artery disease Hypertension
Cobalt (26)	Excessive use of alcoholic beverages, with food, with drugs containing cobalt	Cardiomyopathy Myocardial injury
carbons	Inhalation	Acute arrhythmia and sudden death
Lead	Inhalation, soldering paint mərmi, shells, insecticide, illegal drink, ore purification case, lead based paint, ceramic manufacturing, lead pipe cereals, fish machine silencers, drink boxes, vegetable, meat	Cardiomyopathy Myocardial injury Hypertension Coronary artery disease Peripheral arterial disease
Methyl chloride	Metabolized into carbon monoxide in the body, as a solvent in the synthetic leather industry, as a coolant in the poly polystyrene foam production, local anesthetic, gres oil	Acute myocardial infarction Angina, arrhythmia and sudden deaths Arteriosclerosis
Deficiency of calcium and magnesium, sulfate and carbonate salts	Drinking soft water	Increased risk of death from cardiovascular disease
Selenium deficiency	It is a naturally occurring element in the soil and has an antioxidant effect. Taken with food and water. Selenium deficiency is associated with the development of cardiomyopathy	Cardiomyopathy
Air pollution (SO_2, NO_2, CO)	All kinds of pollutants (car smoke, industrial and.s) enters through the respiratory tract	Coronary artery disease. Increased risk of death from cardiovascular disease Increase in hospital applications
Hydrocarbons and solvents	Can be inhaled in the paint, textile, furniture industry	Cardiac arrhythmia Fatal arrhythmia
Organophosphate and carbamate insecticides	Agriculture, pesticide production and use of meat, fish, poultry, dairy products	Cardiac arrhythmia
Cyanide	Mining industry, the impact of the work environment	Myocardial asphyxia Acute heart attack
Hydrogen-sulfide	Garbage, sewer and well workers	Myocardial asphyxia, Acute heart attack
Organic nitrates	Fertilizers, drinking water and household water, food	Nonateromatous ischemic heart disease
Mercury	Exposure to 2,3,7,8 tetrachlorodibenzo-p-dioxin in miners	Increase in cardiovascular Disease Dilatation cardiomyopathy

Sometimes cardiovascular diseases associated with element deficiency occur in the body. Low selenium is an element that is naturally present in the soil and has an antioxidant effect. Passes into the body through food and drinking water. With the formation of cardiomyopathy, when selenium is low, parallel, it forms the roughness of drinking and used water and the salts of calcium and magnesium in its composition. Since there is a necessary amount of calcium in the food taken, a lack of calcium is not observed in the body, but the body can not afford the need for magnesium. It is observed that the most frequent deaths in heart patients are more associated with the complexity of the composition of drinking water and technical water [9].

Experts say that by reducing the hardness, minerals and salt of drinking and domestic water, the amount of magnesium and calcium in the water can be reduced. This can also lead to the formation of cardiovascular diseases.

Preventive measures in the prevention of cardiovascular diseases should aim to reduce cardiovascular risks now or in the future. These risks can be related to environmental factors or lifestyle. Therefore, it is necessary to increase research aimed at identifying and preventing the true causative factor and causes of cardiovascular diseases. Otherwise, the treatment of cardiovascular, cancer and other chronic diseases will be difficult, expensive and long-term, so there will be a lot of material and moral damage [3].

It is not easy to fight individually with many chemicals in the environment that are known to cause or facilitate the development of cardiovascular disease. Therefore, state control, such as the composition of effective water and food products, control over the use of chemicals, planned use of fertilizer, various kinds of clothing, the paint used in consumer goods such as furniture, etc., controlled use of chemicals such as varnish, acetone and glue, checking and measuring whether there is residue in the final product produced should be in the forefront [2].

The most effective way to protect yourself from the disease is to cut off contact with the cause. Combating smoking, alcohol and environmental pollution, the prohibition of chemicals known to be harmful, the use of foods that do not contain chemical residues in their composition should be one of the main directions in this regard. Future healthy generations can be achieved by forming a healthy environment. With a healthy environment and young generations growing up in this environment, it is possible to reach a healthier society.

Conclusion. As a result of the research, the role of environmental events, namely physical, chemical, biological, socio-cultural factors in the development of diseases was investigated. In particular, the lack of toxic substances in the body is a direct cause of cardiovascular disease. The emergence of diseases such as cardiac arrhythmia, ischemic heart injury, cardiomyopathy, peripheral artery occlusion, coronary artery disease, hypertension, etc. is always relevant today. The most common cause of selenium deficiency is an element that occurs naturally in the soil and has an antioxidant effect, passing into the body through food and drinking water. Low levels of selenium, along with the development of cardiomyopathy, lead to the hardness of drinking and used water and the formation of calcium and magnesium salts. Due to the adequate amount of calcium in the food intake, there is no calcium deficiency in the body, but the body's need for magnesium cannot be met properly.

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Надійшла до редколегії 11.10.2021