

THE INFLUENCE OF ENVIRONMENTAL FACTORS ON THE ORIGIN OF CARDIOVASCULAR DISEASES

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Abstract: This article analyzes the role of environmental factors in the origin of Yura mine Tomic diseases and their impact on human health. Environmental contaminants, air, water and soil pollution, as well as man-made factors and changes resulting from human activity have been shown to play a role in causing skin diseases. The article, relying on the results of the study, is based on the prevalence of certain skin diseases and their relationship with the ecological situation in the Jurassic blood area. At the same time, recommendations are given aimed at ensuring preventive measures as well as a healthy lifestyle. This work serves as a useful source of information for professionals and researchers in the field.

Keywords. heart, stroke, blood pressure, hypertension, environmental factors, diabetes mellitus, nervous disorders, bronchial asthma, magnetic storm.

Introduction. Cardiovascular disease (ICRC) today remains one of the main causes of death not only in Uzbekistan, but throughout the world. In recent years, these diseases have also become widespread among young people and have become a serious socio-economic problem. According to the Ministry of health of Uzbekistan, 57.2% of deaths reported in the country in nine months of 2024 were associated with diseases of the cardiovascular system [1]. This situation requires an in depth study of the impact of environmental factors on human health.

Relevance of the topic: environmental problems such as Global climate changes, air pollution, increased magnetic storms and drying of the Aral Sea have a direct or indirect impact on the development of cardiovascular diseases. Especially in regions facing environmental problems such as Uzbekistan, these factors negatively affect the health of the population.

Research objective. The main purpose of this study is to determine the role of environmental factors in the origin of cardiovascular diseases, analyze on the basis of available statistics and develop preventive measures.

Materials and methods. Today, the influence of the external environment on the human body is increasing. Especially negative changes in the ecological environment directly affect the cardiovascular system, causing the development of these diseases at an early age. Now let's analyze the main environmental factors that are leading to the widespread spread of these diseases.

The effect of anomalous heats on the cardiovascular system. In recent years, the number and intensity of anomalous warming in Uzbekistan has increased sharply. According to the Hydrometeorological Service Center (Uzhydromet), in the summer months of 2023, the temperature in some areas rose to +45°C. This figure is one of the highest temperatures in the last 80 years. In regions such as Tashkent, Bukhara, Navoi, Khorezm, the average temperature was above +40°C for 15-20 days in July and August [5].

Anomalous heats strain the body's thermoregulatory system, cause circulatory failure and do not overload the heart's activity. According to who, at temperatures above +35°C, the risk of heart attacks increases by 17% [1]. Especially in individuals suffering from diabetes, hypertension or obesity, cases of heart attacks and strokes are 2-3 times more common.

In the summer of 2023, the Republican Scientific Center for Emergency Medicine announced a 28% increase in the number of heart-related emergency calls [2]. This is a sign that heat waves are a direct threat to heart function. Also,

hot air causes blood vessels to expand, pressure to drop, and the heart to beat faster to compensate for its work. This condition is especially dangerous for patients with hypotonics and ischemic heart disease.

In an urban environment, the heat is affected even more strongly. The fact that the air temperature in Tashkent was $+36^{\circ}\text{C}$ even at 23:00 on July 2024 at night was a serious threat to the health of the population [1]. Such conditions call the so-called "hot stress" syndrome, which can disrupt the heart's rhythm of walking, lead to blood clots, thrombosis and stroke.

The effect of magnetic storms on the cardiovascular system. In recent years, magnetic storms have been observed in Uzbekistan more often. This condition negatively affects the health of patients with cardiovascular, nervous system diseases, diabetes mellitus and bronchial asthma. Experts recommend eating light foods, eating fruits and vegetables, reducing salt levels, and controlling blood pressure during periods of magnetic storms. According to NASA and ESA (European Space Agency), an 11-year maximum period of solar activity is observed in 2024-2025. During this period, the number of geomagnetic storms reaches an average of 50-70 times a year [4].

According to the center of the Hydrometeorological Service of Uzbekistan and the Institute of Astronomy under the Academy of Sciences of the Republic, during 2023, 48 strong magnetic storms were recorded in Uzbekistan, the highest in the last 10 years [4]. During magnetic storms, biological systems in the human body, especially the nervous and cardiovascular system, show strong sensitivity. On days of magnetic activity, conditions such as increased heart rate (tachycardia), changes in blood pressure, headaches, insomnia and heart attacks increase dramatically.

During the severe G3 magnetic storm in December 2023, heart-related ambulance calls in Tashkent and Samarkand increased by 32% [1]. Employees of the Republican Emergency Medical Center noted that on these days, patients

with ischemic heart disease and hypertension in particular turned to hospitals in critical condition.

The effect of magnetic storms on the activity of the heart is explained as follows: a sharp change in the geomagnetic field affects the vegetative nervous system that controls the heart rhythm, destabilizes blood pressure, leads to blood clotting and thrombus formation. This in turn causes cases of heart attacks and strokes.

Especially those who are over 40 years old, suffer from hypertension, heart failure, diabetes mellitus, as well as young people sensitive to changes in air pressure are seriously at risk during magnetic storms. The increase in magnetic storms on the territory of Uzbekistan is becoming one of the important factors in the development of diseases of the cardiovascular system. Therefore, during such periods, it is necessary to warn the population, to strengthen preventive measures, especially for people with weak hearts, to introduce separate medical supervision.

Conclusion. The healthy functioning of the cardiovascular system is directly related to factors of the external environment, and especially against the background of climate and environmental changes, the threat to human health is growing. Factors such as anomalous temperatures observed in Uzbekistan today, the frequent recurrence of magnetic storms, and the drying up of the Aral Sea are contributing to a dramatic increase in cardiovascular disease in the youth and middle-aged population.

These conditions indicate that diseases of the cardiovascular system are now strongly influenced not simply by internal factors, but by external-climatic and environmental risks.

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