HEAVY METALS. IMMUNOPATHOLOGY

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Аннотация. *Избыточная концентрация тяжёлых металлов в атмосфере вызывает серьёзные проблемы. Тяжёлые металлы — это химические элементы, которые даже в очень малых концентрациях обладают высокой плотностью и токсичностью. Поэтому они относятся к категории чрезвычайно опасных экологических отходов. Их природные источники также весьма опасны. Потому что они не разлагаются. Поэтому они создают множество проблем, связанных с экологией и живыми организмами.*

Синергетическое воздействие природных и искусственных тяжелых металлов на организм человека может вызывать различные заболевания, в том числе иммунодефицит.

Ключевые слова: *Тяжёлые металлы, слабый, механизм, иммунопатология, естественный, искусственный, проблема, свойство, экопатоген, цинк, кобальт, кадмий, свинец, ртуть, мышьяк, хром*

Abstract. *Excessive concentrations of heavy metals in the atmosphere cause serious problems. Heavy metals are chemical elements that, even in very small concentrations, have a high density and toxicity. Therefore, they are classified as extremely hazardous environmental waste. Their natural sources are also very dangerous. Because they do not decompose. That is why they create many problems related to ecology and living organisms.*

The synergistic effect of natural and artificial heavy metals on the human body can cause various diseases, including immunodeficiency.

Keywords: *Heavy metals, weak, mechanism, immunopathology, natural, artificial, problem, property, ecopathogens, zinc, cobalt, cadmium, lead, mercury, arsenic, chromium.*

Heavy metals are a class of chemical elements considered environmental factors. Even very small concentrations of them have high concentration and specific toxicity. Heavy metals that are common in the environment include lead, cobalt, cadmium, mercury, arsenic, and chromium. Natural sources of pollution include volcanic eruptions, rock weathering, and natural erosion. These heavy metals are known to have extremely hazardous effects.

As a result of mining and its use in agriculture, waste can enter the environment. These heavy metals do not decompose, so they create problems associated with accumulation in ecosystems. This poisons the healthy habitat of living organisms.

Natural and artificial heavy metals common in the environment can pose a risk to human health and the environment. Some heavy metals, such as copper, zinc, iron, manganese and others, are of great importance for biological processes. However, their excessive concentrations can cause various diseases of a living organism, including immunopathologies.

Immunopathology is a branch of medicine that studies the causes of diseases caused by various factors. Immunopathology studies the consequences of diseases associated with the immune system. It studies the processes of the course of diseases of the immune system in children and adults, that is, the cellular and molecular mechanisms of their development.

Heavy metals present in the environment have a negative impact on the physiological properties and functional state of the immune system of a living organism.

The immune system evaluates the impact of heavy metals and various abiotic factors that cause atmospheric pollution. Excessive concentrations of heavy metals suppress the natural protective functions of the immune system. As a result, the immune system cannot create memory cells and respond to attacks by abiotic factors. Its ability to block the action of toxins weakens. As a result, it cannot

destroy various pathogens on its own. Cellular immunity cannot resist attacks by antibodies.

The immune system, along with ensuring the adaptation of the organism to the environment, controls the means of protection. Protecting the living organism from the effects of environmental factors, it provides natural and acquired, as well as adaptive immunity.

However, there are cases where the immune system is damaged by their spread into the environment in various ways. In this case, the immune cells, attacked by heavy metals, xenobiotics and pesticides, are unable to remove the antigenic substances from the body.

Natural defense mechanisms, innate resistance or innate immunity, serve as a barrier against environmental factors. Under the influence of abiotic factors, they are also unable to quickly respond to attacks from various pathogens.

Currently, a large number of young children suffer from iron deficiency, rickets, respiratory diseases, and anemia due to various abiotic factors.

The immunopathology department also found that various heavy metals weakened memory cells, rendering the immune system unable to perform its functions.

Based on the above, it can be said that in order to achieve a healthy lifestyle, it is necessary to create a healthy environment. It is necessary to develop measures to protect human health from the effects of environmental factors. To reduce excess concentrations of environmental factors in the environment, it is necessary to introduce the use of natural and artificial environmental protection techniques.

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