

Effects of Climate Change on the Reproductive System of Young People

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Abstract

The article presents an overview of scientific publications covering issues of environmental distress and the ability of the human body to adapt to the current situation. The role of ecotoxins in the development of nonspecific pathology of the reproductive health of women is revealed, while questions regarding to the specific effects of xenobiotics on the level of women health in hot climate remain open for Uzbekistan. Considering that the impact on the reproductive health of women is multifactorial and multi-vector, assessing health risks and developing measures of applied significance to manage these risks will reduce the anthropogenic load on a woman body and improve life quality and health of future generation.

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INTRODUCTION. *Man is an open system, continuously interacting with the environment, which implies the influence of the environment on the development and functioning of the human body [1, 2].*

MATERIALS AND METHODS. *At the beginning of the 21st century humanity faced to a serious problem of general environmental pollution. Golikov R.A. (2017) in his work indicates that the aim of solving this problem is to preserve natural resources, which in the future will ensure the economic and social development of the country, and most importantly, will ensure comfortable environmental living conditions of the population and will prevent the possibility of harmful environmental pollution,*

which will ensure the health of future and present generation [3].

Ratzel F. in his treatise presented the main ideas about the close connection of anthropogenesis with natural conditions, considering the state as a biosocial organism that is inextricably linked with the characteristics of the ethnic group inhabiting it, but the scientist did not reveal the degree and vector of this influence [4].

RESULTS AND DISCUSSIONS. The issue of developing methods for forecasting and establishing a quantitative relationship between indicators of morbidity, mortality and the level of long-term air pollution, which negatively affects the health of the population remains relevant [5].

The alternative to the existing regulatory approach to assessing the potential harm of ecosystem pollutants for public health is the concept of risk, which quantitatively proves the degree of risk, as the constant presence in the ecosystem of substances potentially harmful to health creates one or another degree of real risk, which is never zero. Moreover, the concept of risk includes two elements: risk assessment and risk management [3].

Investigating this problem, it should be noted that nowadays a person is faced to the influence of new chemical substances to which adaptation has not been developed and the defense system has not been genetically fixed, as a result of which pathological changes appear in the most vulnerable systems of the body, and more often in children, pregnant women, elderly and weakened people, i.e. in the weakest structural and functional link of the population [2].

Considering that the reproductive health of women is an objective indicator of assessing the adverse environmental impact on the human body, studies devoted to the study of this issue will make it possible to obtain a scientifically proven cause-and-effect relationship and assess the degree of risk of the impact [1].

Due to the increase in anthropogenic loads and environmental genotoxicity in environmentally polluted areas, there is a progressive deterioration in the reproductive health of women. When studying the spectrum of aerogenic toxic substances, the authors noted a wide range of different occurrences of xenobiotics (dust, lead, cadmium, sulfur dioxide, formaldehyde, nitrogen dioxide, sulfur oxide, carbon monoxide, hydrogen sulfide, etc.) [4].

As for the scientists of the sphere, “the body of a pregnant woman is most sensitive to the effects of chemicals, because during pregnancy the respiratory, cardiovascular and excretory systems are overloaded, water-salt and fat metabolism changes, which in turn reduces the body’s ability to metabolize xenobiotics and directly affects the results of the body’s interaction with the toxin” [3].

Reproductive health is the most important part of population health and a qualitative characteristic of population reproduction. Currently, it is increasingly realized that the health of the woman herself, her

adaptive and immune-protective capabilities are becoming the weakest link that can contribute to a decrease in fertility (reproductive capabilities) and health levels. At the same time, the viability of generations deteriorates at all stages of ontogenesis [4].

Studying this issue some scientists came to conclusion that the main cause of disorders of the reproductive system in environmentally unfavourable condition is the accumulation in the body of substances unusual for it, so-called xenobiotics, which adversely affect the formation of reproductive function, egg maturation, ovulation process, fertilization of the egg, implantation of the fertilized egg, the formation of the placenta and its functional state [5].

Considering the adaptive restructuring in the organs of a pregnant woman and pulmonary hyperventilation, which during pregnancy is twice as large per unit body volume, xenobiotics present in the inhaled air play a huge damaging role on the organs and systems of pregnant women [3].

Xenobiotics predominantly affect the nervous system, “as a result of which the transformation of biogenic amines (serotonin, histamine, etc.) is disrupted and their excessive accumulation occurs in the body, which subsequently leads to pathological neurohumoral regulation of the body and causes disturbances in the body’s cycle.

Reproductive functional disorders are observed not only in cases of disturbances in the system of sexual cycle regulation, but also in other organs and systems of the body, since chronic intoxication with xenobiotics leads to disruption of all metabolisms (protein, carbohydrate and fat), leads to a decrease in the absorption of vitamins in a woman’s body, as well.

Thus, all of the above-listed lesions of organs and body systems involved in the regulation of the reproductive system under the influence of ecotoxins were identified not only in people who work in contact with them, but also in people who live in the environmental pollution areas.

In addition, the data obtained on the “relationship between reproductive function and the state of somatic health of women, their physical and sexual development were largely determined by the presence of a history of childhood infections, anemia, endocrinopathies, diseases of the respiratory system, liver, biliary tract, gastrointestinal tract and cardiovascular” [3].

It is obvious that the impact on a reproductive health of women is multifactorial and multi-vector, the natural-climatic, social, economic, physical, and cultural-ethnic reasons also play an important role. But world research emphasizes the importance of environmental factors on the quality of life of a modern women. It has been proven that ecotoxins have a general toxic effect on the woman’s body, expressed in nonspecific general effects of liver damage, anemia, dermatoses, hypo- and aplastic conditions. Considering the negative features of reproductive behavior (frequent medical abortions, a large number of late marriages and births at a later reproductive age, lack of a culture of using contraceptives), which

in turn cause the development of hypochromic anemia, hypertensive conditions, miscarriage pregnancies, labor anomalies and cause a high level of perinatal losses and pathologies in newborns [4].

Ailamazyan E.K., assessing the obtained data “formulated the main provisions of general ecological reproduction which are as follows:

- a woman’s reproductive system is highly sensitive to the effects of unfavourable environmental factors of any origin and any intensity, including subthreshold ones;
- environmentally dependent pathology of the reproductive system is formed when all levels of adaptation are disrupted - molecular, supramolecular, cellular, tissue, systemic and regulatory;
- germ cells and embryos in the early stages of formation are also exposed to the harmful effects of unfavourable environmental factors;
- in the formation of environmentally dependent pathology of the reproductive system, specific, non-specific and constitutional factors are important, but non-specific and general pathological disorders predominate among them, which when exposed to various natural and anthropogenic factors on the body, manifest clinical, pathophysiological chemical, hormonal, biochemical and immunological changes that are very similar to each other and in most cases are unidirectional of the same type.

CONCLUSION. From the reviewed literature it follows that from year to year the deteriorating environmental conditions of the environment can have a stronger impact on the functional state of the reproductive system and the woman’s body as a whole than the isolated influence of production factors [2].

Thus, an analysis of the literature data covering the main causes of deterioration in reproductive health allowed us to conclude that human health is a kind of integral assessment of the environment, and the impact of unfavourable anthropogenic factors leads to complications in various organs and systems of the body.

Developing the measures of applied significance in order to reduce pregnancy complications which caused by the environmental load on a woman’s body, further research is needed to assess the degree of ecotoxins risk and scientific substantiation of the cause-and-effect relationships between them, which was the rational for conducting further research in this direction in Uzbekistan.

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