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Pathogenetic Aspects of the Properties of Water in the Human Body and the Effect of Solid Water

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Abstract The pathogenesis of groundwater with a high chemical composition is explained by the direct and indirect effects of chemicals on the body. Chemical compounds contained in water are associated with their direct and indirect effect on the vascular walls and in the parenchyma of whole organs, and on the metabolism. This is accompanied by a violation of physicochemical processes in the affected cells. In this case, the process of increasing or weakening the permeability of the cell membrane is observed.

Keywords Radiolysis of water, Atomic hydrogen, Hydroperoxyl radicals, Hydrogen peroxide, Disulfide compounds, Macrophytes

1. Introduction

Among the external influences, one of the most common in modern times is consumed waters with different compositions, salts, macro-and micro elements in excess of water, the chemical and biological composition of which has been proven to negatively affect the organs and systems of the body. Morpho-functional changes in the kidney as a result of groundwater consumption are a pathological condition of the body, caused by exposure to doses higher than the maximum permissible norms of chemical elements and compounds. The development of therapeutic and preventive measures to reduce the impact of changes in the body caused by the consumption of waters with high chemical composition, including the morphological characteristics of members and groundwater with high chemical composition, has not lost its relevance [2,6,9].

The researchers-scientists of the leading scientific centers in the world today conducted research work on the maximum doses of exposure of groundwater to the body with a high chemical composition, the duration of their production of reversible and irreversible pathological processes in the body, the degree of impact of groundwater with a high chemical composition on the system and its members, the production and use of water It also leads to Morpho-functional changes in the kidney as a result of groundwater with a high chemical composition [2,6].

2. Materials and Methods

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Circulatory disorders are observed based on many clinical syndromes, closely related to pathogenetically different effects monosubates. Morphological changes formed as a result of the influence of groundwater with a high chemical composition on the internal organs of the body have also been studied, the results of experimental studies on the effect of biofaolic additives have been published. However, morphological changes that occur in the kidney under the influence of groundwater with a high chemical composition, a new treatment for them with biofaolic additives-the degree of preventive effect has not been studied, the degree of influence of biofaolic additives on the level of morphological changes has not been shown [1,5,8].

Groundwater with a high chemical composition is carried out only during the period of its impact on the body, under the influence of which various Morpho-functional changes appear in the body. Groundwater with a high chemical composition can enter the body through the skin, gastrointestinal tract, respiratory tract. After that, it spreads through the bloodstream and lymph flow to other organs and tissues of the body.

The pathogenesis of groundwater with a high chemical composition is explained by the direct and indirect effects of chemicals on the body. Chemical compounds contained in water are associated with their direct and indirect effect on the vascular walls and in the parenchyma of whole organs, and on the metabolism. This is accompanied by a violation of physicochemical processes in the affected cells. In doing so, cell membrane permeability increases or weakens.

The indirect effect of groundwater with a high chemical composition is explained by the formation of radiolysis of water, which makes up 70-80% of the body, in which

radicals with oxidative and alkaline properties are formed when water ionizes. In addition, the formation of atomic hydrogen, hydroperoxyl radicals, hydrogen peroxide is also significant. Free oxidizing radicals undergo an enzymatic reaction, as a result of which active sulfhydryl groups are converted into inactive disulfide compounds. These biochemical processes lead to a decrease in the catalytic activity of enzyme systems, which in turn leads to a decrease in DNA and RNA in cell nuclei, a condition that disrupts the processes of their renewal [3,6,8].

Due to the addition of Central Asian drainage-ditch, industrial and municipal dirty wastewater into rivers, the amount of harmful substances in the waters of Amudarya and Syrdarya, as well as the concentration of harmful chemicals from crop fields, is found to be 1.8-3.0 times higher than normal. Therefore, in industrialized cities in reducing the amount of dirty wastewater, in maintaining clean water resources, it will be necessary to improve the methods of construction and treatment of wastewater treatment facilities under an enterprise, to switch to the use of waste dirty water for irrigation, and to protect water resources from pollution, index two water pipeline systems will be needed. From one should come drinking water, from the other technical water, which is used for industrial and municipal enterprises. In later times, research has been focusing heavily on the issues of clean and reuse of effluent from various Halq farming sectors in acceptable ways. The reason for this is the fact that water sources are becoming unusable as a result of increasing the level of pollution from various harmful substances. As we know, the reuse of household-municipal and agricultural products means that the wastewater from farms will contain a large amount of organic-mineral substances and pathogenic bacteria that spread various diseases. For example, the composition of household and municipal effluents consists mainly of organic matter, organic matter decomposes under the influence of microorganisms and turns into mineral substances, that is, the process of mineralization occurs. Wastewater from all enterprises must be treated in special devices (aerotenks) and disposed of in water bodies. Some businesses do not have sewage treatment devices. There are also 11 or chala untreated without water treatment, which leads to their pollution as a result of being treated and thrown into open water bodies [5,8,10].

Currently, part of the water used in our Republic is being treated, and the rest (50%) is being pumped into water bodies without being completely cleaned. One of the main ways to prevent such negative consequences, that is, to keep the hygienic state of water facilities clean, consists in the construction of sewage treatment devices, the application of modern methods, the development of a scientific basis for the reuse of treated wastewater. Therefore, the study of cleaning household and municipal wastewater with the help of algae and aquatic plants is considered one of the main factors and is currently one of the most pressing problems for the protection of Water Resources.

3. Result and Discussion

Currently, 200 million in the entire world. for irrigation of hectares of land, 2800 km3 of water per year is obtained from rivers and underground. This is equivalent to 7% of the world's river water. Of the 2,800 km3 of water taken, 17% or 470 km3 of return water is visually added to rivers and groundwater, while the remaining 83% or 2,330 km3 is completely spent. Uzbekistan spends 92% of fresh water received in the Republic in agriculture, 6% in industry, 0.5% in utilities. Under the influence of urban expansion, the rapid development of industry and agriculture, the increase in irrigated land, the increase in population and the improvement of living conditions and other factors, the problem of water supply of humanity is becoming more complicated. Therefore, the protection and rational use of water resources throughout the world remains one of the most important issues. In our republic, extensive research work on this area is carried out and the necessary measures are being implemented. An important requirement of the current period is the introduction of new, cost-effective technologies in the protection of Water Resources, the introduction of a closed cycle of water use, biological 7 treatment of wastewater, the development of environmentally safe, economically affordable and effective methods. Currently, ¼ of the population of the globe lives in countries where drinking water is scarce. This is the case in Algeria, Belgium, England, France, Germany, the Netherlands, Denmark, The Republic of South Africa, Mexico, Japan, especially in a number of African countries, Middle Eastern countries and developed European countries, too, freshwater shortages are very felt [1,5,9].

The water resources of the Republic of Uzbekistan are made up of surface and groundwater, the indicators of their amount are 433 m3. Only 2% of all water sources are located in Central Asia, Kazakhstan, Azerbaijan and Moldova, where the former Union makes up ¼ of the total land area. Pollution and degradation of Water Resources in this water, various organic, inorganic, mechanical, bacteriological and other substances accumulate, its color clarity, smell and taste increase in the amount of organic and mineral additives, the appearance of harmful compounds, oxygen in the composition of water decreases, increasing the number of different types of barcteria, leading to the emergence of bacteria that spread infectious diseases. As part of the implementation of the activities of the program of the Republican fund for nature protection in 2016 ―Water Management ecology ‖ scientific and production of the State Unitary Enterprise on the basis of intensification of the process of hydrobiological treatment of wastewater and improving the efficiency of macrophyte (high algae) groups of treatment Properties, re-treatment bioengineering technology was developed and introduced as [2,5,6].

EP groundwater varieties include: according to the location conditions, groundwater is divided into soil water, seasonal water, grunt water and interlayer water. Groundwater is natural solutions, almost all known chemical elements are found in its composition.

In terms of mineralization (total amount of dissolved substances in water, G/L), groundwater is divided into freshwater (up to 1.0), saltam (1.0—10.0), saline (10.0— 50.0) and namakob (more than 50) types. In terms of temperature, it is divided into cooled (up to 4°), cold (4-20°), warm (20-37°), hot (37-42°), boiling (42-100°), and superheated (above 100°) groundwater. (Ad: Mavlonov G. O., Kenesarin N. A., underground water treasure, t., 2018).

4. Conclusions

The intensity of functional changes in the kidney among patients who took the biologically active supplement "Lemon water" as a preventive biocorrection to prevent changes in the kidney after drinking groundwater was lower than in patients who did not take this biopreparation. Prophylactic biocorrection affected the level and intensity of functional changes in the kidney among patients and was practically different from the contingent of patients who did not receive this biopreparation. In the treatment of experimental animals with morpho-functional changes in the kidney with "Lemon water" antioxidant biologically active additive, high efficiency is noted in the early stages of disease development.

REFERENCES

[1] Calafat AM, Needham LL. Human exposures and body burdens of endocrine-disrupting chemicals. In: Endocrine-Disrupting Chemicals. Humana Press (2007) 253–268. doi: 10.1007/1 59745-107-x_11.

[2] Porte C, Janer G, Lorusso L, Ortiz-Zarragoitia M, Cajaraville M, Fossi M, et al. Endocrine disruptors in marine organisms, approaches and perspectives. Comp Biochem Physiol C Toxicol Pharmacol. (2006) 143: 303–15. doi:.1016/j.cbpc.2006.03.004.

[3] Kim BY, Rutka JT, Chan WC. Nanomedicine. N Engl J Med. (2010) 363:2434–43. doi: 10.1056/NEJMra0912273.

[4] Hardy A, Benford D, Halldorsson T, Jeger MJ, Knutsen HK, More S, et al. Guidance on risk assessment of the application of nanoscience and nanotechnologies in the food and feed chain, Part. 1, human and animal health. EFSA J. (2018) 16: e05327. doi: 10.2903/j.efsa.2018.5327.

[5] Lagaron JM, Lopez-Rubio A. Nanotechnology for bioplastics, opportunities, challenges and strategies. Trends Food Sci Technol. (2011) 22:611–7. doi: 10.1016/j.tifs.2011.01.007.

[6] Talsness CE, Andrade AJ, Kuriyama SN, Taylor JA, vom Saal SF. Components of plastic, experimental studies in animals and relevance for human health. Philos Trans R Soc Lond B Biol Sci. (2009) 364: 2079–96. doi: 10.1098/rstb.2008.0281.

[7] Halldorsson TI, Rytter D, Haug LS, Bech BH, Danielsen I, Becher G, et al. Prenatal exposure to perfluorooctanoate and risk overweight at 20 years of age, a prospective cohort study. Environ Health Perspect. (2012) 120: 668–73. doi: 10.1289/ehp.1104034.

[8] Lauritzen HB, Larose TL, Øien T, Sandanger TM, Odland JØ,Van De Bor M, et al. Prenatal exposure to persistent organic pollutants and child overweight/obesity at 5-year follow-up, a prospective cohort study. Environ Health. (2018) 17:9. doi: 10.1186/s12940-017-0338-x.

[9] Morte D, Gargiulo G, Basile C, Langellotto A, Galizia, T esta G, Canonico V, Bonaduce D, Cacciatore F. 2014.

[10] Cognitive impairment and cardiovascular diseases in the elderly. A heart-brain continuum hypothesis. Ageing Research Reviews 18:41-52.

[11] Abete P, Napoli C, Santoro G, Ferrara N, Tritto I, Chiar ello M, Rengo F, Ambrosio G. 1999. Age-related decrease in cardiac tolerance to oxidative stress. Journal of Molecular and Cellular Cardiology 31: 227-236.

[12] Abruzzo PM, Ghezzo A, Bolotta A, Ferreri C, Minguzzi R, Vignini A, Visconti P, Marini M. 2015. Perspective biological markers for autism spectrum disorders:advantages of the use of receiver operating characteristiccurves in evaluating marker sensitivity and specificity. Disease Markers 2015: 329607.

[13] Adeshirlarijaney A, Zou J, Tran HQ, Chassaing B, Gewirtz AT. 2019. Amelioration of metabolic syndrome by metformin associates with reduced indices of low-grade inflammation independently of the gut microbiota. American Journal of Physiology-Endocrinology and Metabolism 317: E1121-E1130.

[14] Agrawal S, Dhiman RK, Limdi JK. 2016. Evaluation of abnormal liver function tests. Postgraduate Medical Journal 92: 223-234.