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HYGIENIC CONTROL OF THE DIET OF RESIDENTS LIVING IN CONDITIONS OF RADIOACTIVE LOADS

РАДИОАКТИВ ЮКЛАМАЛАР ШАРОИТИДА ЯШОВЧИ АҲОЛИ
ОВҚАТЛАНИШИНИНГ ГИГИЕНИК НАЗОРАТИ
ГИГИЕНИЧЕСКИЙ КОНТРОЛЬ ЗА ПИТАНИЕМ НАСЕЛЕНИЯ В УСЛОВИЯХ
РАДИОАКТИВНЫХ НАГРУЗОК

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Annotation. This article explores the complex network of interactions between the environment and human health, examining the various ways in which environmental protection directly impacts the well-being of individuals and communities, as well as the negative impact of the environment on nutrition. The importance of solving these problems to improve the living conditions of natural ecosystems and human populations is emphasized.

Аннотация. В этой статье исследуется сложная сеть взаимодействий между окружающей средой и здоровьем человека, анализируются различные способы, которыми охрана окружающей среды напрямую влияет на благополучие отдельных людей и сообществ, а также негативное влияние внешней среды на питание. Подчеркивается важность решения этих проблем для улучшения условий жизни природных экосистем и популяций человека.

Annotatsiya. Ushbu maqola atrof-muhit va inson salomatligi o'rtasidagi o'zaro ta'sirning murakkab tarmog'ini o'rganadi, atrof-muhitni muhofaza qilish odamlar va jamoalar farovonligiga bevosita ta'sir qilishning turli usullarini tahlil qilish va ovqatlanishiga tashqi muhitning salbiy ta'sirlarini kamaytirish usullarini yoritish maqsadida yozilgan. Unda tabiiy ekotizimlar va inson populyatsiyalarining yashash sharoitini yaxshilash uchun ushbu muammolarni hal qilish muhimligi ta'kidlanadi.

Introduction. The assessment of the complex impact of environmental factors on the level of human health presents certain difficulties in scientific and practical practice, since the issues of setting indicators of a separate level of Health have not been developed methodically adequately.[1,2,5]

In most literature, the state of health is assessed on morbidity, meaning that the study of health begins with a diagnosis, and then connects with working or living conditions.[3,4]





The purpose of the study. Radioactive contamination of the external environment is gaining a global character. The average background radiation (external and internal) of a person formed during evolution will be 1 mZv/year. Any increase in background radiation in a particular area is viewed as radioactive radiation. Currently, the main anthropogenic sources of radioactive contamination are industry enterprises that use ionizing radiation sources and nuclear power enterprises at all stages of the nuclear fuel cycle.[7,8]

Research materials and methods. The effect of radioactive radiation on a person is due to radionuclides in the air and on the surface of the ground, contact - as a result of contamination of the skin and clothing, and internal - radionuclides that enter the body with inhaled air and contaminated food and water (incorporated, that is, combined and become one). covers external γ -, β -radiations. Radiation (internal and external) doses can reach significant values in areas of local precipitation. The critical radionuclide in the early stages of contamination is iodine-131 (half-life 8 days), followed by cesium-137 and strontium-90 (half-lives up to 30 years).

Research results and their discussion. In the event of an accident, a significant release of radionuclides from reactors and radioactive waste storage facilities occurs. Accidents leading to failure of reactors and meltdown of the active zone create a special danger, in which not only gaseous and volatile products of nuclear fission, but also a significant amount of non-volatile radionuclides can enter the environment.

A similar scene was formed as a result of the accident at the Chernobyl NPP. The release of radionuclides in the active area of the damaged reactor was a long-term process. Due to the change in the direction of the wind, a wide spread of radioactivity was created. When the radioactive cloud passed, "spots" of increased contamination appeared in places where it rained.

The population living in the contaminated areas will remain in conditions of extremely high radioactive load and will need a complex of sanitary and hygienic protection. In the development of standards, the share of xenobiotics in individual product types in the average daily set of products, as well as the actual amount in food products in a certain region, is determined. The amount of cesium-137 and strontium-90 radionuclides in food products is calculated so that under unrealistic conditions, the expected effective dose of internal radiation is 5 mZv even if the population regularly consumes all food products with radionuclides in the MYD level for a year. does not exceed.

Summary. It follows that a person cannot exceed 350 mZv during his 70-year life, that is, the dose recommended by the International Commission on Radiation Protection as an acceptable dose of radiation. If the level of radioactivity in products exceeds MYD indicators, it is the basis for state sanitary control agencies and other controlling state services to stop the use of certain foods in the population's diet, then neutralize (deactivate) them, conduct re-examination and draw a conclusion.

Iodine-131 is particularly dangerous due to the large release of iodine-131 during the fission reactions of uranium and plutonium in the initial stages of pollution and its high migration ability. However, due to the fact that the half-life is short, properly organized protective measures allow to significantly reduce its harmful effects.

In case of contamination with radioactive iodine, the critical product is milk. Providing the population with pure milk for 2-3 weeks (the period of effective removal of iodine from the





body) allows to sharply reduce its accumulation level, and drug protection with the help of potassium iodate allows additional protection of the thyroid gland.

Similar recommendations are made for other food and feed ingredients. Proper cooking helps to significantly reduce the amount of cesium-137 and strontium-90 in food products and in the daily diet. It is necessary to start processing the products by washing them thoroughly in warm running water, using a solution of baking soda as necessary. Before washing some vegetables (cabbage, onion, garlic), it is advisable to wipe off their dirty upper layer.

Mechanical processing of meat consists in removing contaminated areas of connective tissue. The skin of tubers, tubers and fruits peels off, because radionuclides in the outer layers are much more than in the flesh (up to 50% of the total radioactivity). This measure is especially important in highly polluted areas. The next stage of product processing is freezing in clean water for 2-3 hours. This step is recommended for products that are particularly contaminated with radionuclides (fresh and dried mushrooms, forest nuts, etc.). Meat and freshwater fish should be cut into small pieces and cooled in water before cooking. Boiling is the only preferred method of heat treatment of products in conditions of increased contamination with radioactivity.

The reason why this method of food preparation is especially preferred is that during boiling, a significant part of radionuclides and other foreign substances are released into the boiled water. These products are not suitable for consumption in boiled water. The product is boiled for 5-10 minutes, the water is drained, then it is put into another water, boiling is continued, and this water can now be used for food. This method is suitable for preparing first dishes and side dishes with meat, fish, vegetables, but it is recommended to boil the mushrooms twice for 10 minutes, draining the water each time. This is due to the fact that mushrooms in contaminated areas have the ability to absorb the most radionuclides.

The salinity and pH of the water also affect the release of nuclides into boiled water (soup). The release of strontium from potatoes and meat into boiled water (soup) is as follows (in percentages relative to the activity of the raw product): in distilled water - 30%, in drinking water - 57%, in sour-milk calcium drinking water - 85%. The presence of table salt (6 g/l), which provides the standard taste characteristics of boiled potatoes with peeling, 350, ensures that 45% of cesium is released into the boiled water (this figure is 7% when boiled without salt).

When products are contaminated with radionuclides, it is not recommended to fry and steam them for cooking. In these types of cooking, all radioactive substances remain in the product itself, the concentration of which even increases due to the evaporation of the liquid in them. When vegetables, fruits, mushrooms are pickled, the amount of cesium consumed with pickled products is two times less than that contained in the original products (provided that the products are not included in salted non-food).

When grains are processed and flour and cereals are prepared, their outer shell, which has a significant amount of radioactivity, is removed. Because of this, the amount of radionuclides in flour and cereals is 1.5-3 times lower than in grain. By obtaining fat and protein concentrates from fresh milk, it is possible to achieve a significant reduction in the concentration of nuclides in dairy products. Radionuclides in milk pass into the processed product in inverse proportion





to the fat content of the finished product. In the absence of contamination, processing of products with these methods can cause loss of their nutritional value due to significant loss of vitamins, minerals, amino acids, dietary fibers. Depending on the degree of contamination of the product with radionuclides, a decision should be made on the full or partial use of the recommended cooking methods. The objective of the selected cooking scheme will be to reduce residual amounts of nuclides to MYD with minimal technological impact in all cases.

In the conditions of significant pollution of local feed raw materials and products based on it, when it is necessary to implement a complete treatment scheme with the inevitable loss of important nutrients to the products, the mandatory use of multivitamin and vitamin-mineral pharmacological drugs and the immediate use of imported high-quality measures such as improving the quality of food at the expense of products are recommended.

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