

Цезий-137, образующийся при делении ядер в процессе протекания ядерных реакций – на предприятиях атомной энергетики и в результате ядерных взрывов, попадает во внешнюю среду в результате радиационных аварий, утечек из ядерных отходов, а также испытаний атомного оружия и боевых радиоактивных веществ. Радиоцезий является одним из основных компонентов радиоактивного загрязнения биосферы, в глобальном масштабе, период его полураспада составляет 30 лет. [1] Cs¹³⁷ способен накапливаться в органах и тканях и облучать организм проникающим гамма-излучением. Попадая в окружающую среду, в результате миграции радионуклиды проникают вглубь почвы. Скорость такого проникновения зависит от состояния поверхности почвы и ее влажности[2].

На рисунке 1 представлены результаты измерений активности радиоцезия в почве села Калачи, с учётом максимальной и минимальной погрешности. Наивысшее значение активности радиоцезия (Cs¹³⁷) в исследуемых образцах почвы составило 30 Бк/кг. Отбор данной пробы был произведен на территории села Калачи, на пересечении улиц Больничная и Ленина. Тип почвы – чернозем. В 14 пробах была зафиксирована минимальная активность радиоцезия, что составляет 34,1% от общего количества всех проб почвы.

В точках отбора почвенного грунта, которые находились за пределами села Калачи (в районах реки Ишим и вблизи урановых шахт) не было зафиксировано аномально повышенных значений активности радиоцезия. Близкое расположение урановых шахт не выявило повышенной активности цезия-137, так как он образуется преимущественно при делении ядер в ядерных реакторах и ядерном оружии.

Вывод. Средние полученные результаты по Cs¹³⁷ на территории села Калачи составили 4,8 + 14,4 Бк/кг, что с учётом погрешности определяет следовые уровни содержания, однако в целом проблема радиоактивного техногенного загрязнения носит глобальный характер. Активность естественных радионуклидов – на уровне среднемировых показателей: Ra²²⁶ 31,3 + 17,9 Бк/кг, Th²³² 25,7 + 18,6 Бк/кг, K⁴⁰ 329,6 + 195,4 Бк/кг.

В процессе комплексных радиоэкологических исследований, помимо выявления активности радиоцезия в почвах, был обнаружен целый ряд отклонений от норм и превышения ПДК и других различных соединений и веществ, оказывающих негативное влияние на здоровье населения.

Список литературы

1. И.Я. Василенко. Радиоактивный цезий-137. Москва, «Природа» №3, 1999.
2. Интернет-ресурс: Википедия. «Цезий-137» <https://ru.wikipedia.org/wiki/%D0%A6%D0%B5%D0%B7%D0%B8%D0%B9-137>

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AUTOIMMUNE PROCESSES IN THE PERSONAL COMPUTER USERS AS POSSIBLE CAUSES OF PHYSICAL ILLNESSES

Introduction. The problem of the harmful effects of the computer, such as the monitor, on the human body has acquired a truly global scale. In 1992, the share of so-called "ergonomic" diseases in the United States accounted for more than 50% of all occupational diseases, and the dynamics of their growth exactly matched the development of computerization in the country. Such ailments are accumulated gradually, but if time does not take action, can lead to total or partial disability. In the early 90s the US and European insurance companies have been hit hard by the epidemic, "ergonomic" disease that has led to the funding of research in this direction. Causes of "computer disease" has not yet been fully

elucidated. It may be noted that throughout the history of human development it has not had to deal with such a load mode and thus influence how you operate the computer, so that his body and mind did not have time to adapt. At the same time today, the question for most people - to use a computer or not, is not worth it. Anyway, for many people, the computer has become an important and necessary part of life.

The purpose of the researching. To determine the influence of the computer work on the development of the somatic diseases.

Materials and methods. Immunological studies (IR) patients, analysis of the literature on the topic of research, surveys, mathematical data processing, observation, interview, interview, comparison.

Results and discussion. Many people who are constantly working with the computer, note that often a short time after the beginning of operation there headache, pain in the face and neck muscles, aching pain spine, pain in the eyes, tearing, violation of a clear vision, pain hands when driving. [1] The negative impact of computers on the person is complex, so the study of the influence of computer technology should be comprehensive, taking into account the related impact of a variety of factors. Only an integrated approach helps to reliably estimate the impact of the computer on the user's health. The real threat to the computer user are electromagnetic fields. The main adverse factors of industrial environment PC users: EMC (electric and magnetic components), static electricity. Electromagnetic radiation has the greatest impact on the immune, nervous, endocrine, and reproductive systems. The immune system reduces emissions in the blood of specific enzymes which perform a protective function, a weakening of the cellular immunity system occurs [2]. Endocrine system begins to emit the bigger amount of adrenaline in the blood, as a consequence, the load on the cardiovascular system of the body increases. An in-depth survey of PC users' health showed a significant growth of the somatic diseases (Somatics), correlating with an increase in workload, length of service and age. EC pointed out the intensification of autoimmune processes (AIP), so it means that the growth of somatic pathology can be connected with the activation of the AIP. Over 90% of computer users complain of burning or pain in eyes, feeling the sand under the eyelids, blurred vision, and others. The complex of these and other specific ailments recently called "Computer eye syndrome". [5]

Conclusions. Exploring the problem of computer effects on human health, it becomes apparent that the means of modern information technologies certainly affect the user's body and the "dialogue" with the computer requires strict regulation of working time and the development of sanitary reduction activities and the prevention of such impacts. It has been found that the visual system diseases prevailed in young users, Somatics were detected in 2.62% of individuals. At the age of 26 years and more Somatics already accounted nearly 35-37%. EC pointed to the imbalance between the T- and B-systems, the activation of the AIP. The AutoAB increasing was detected in users of PC to double-stranded DNA native and denatured DNA, and to the thyroid tissue, which is the stress organ, that can testify about descension in adaptive reserves. The increasing of autoAB to cardiolipin AG could indicate the possibility of developing cardiovascular pathology .

Literature

1. *E.N. Budjanskaya* HARMONIZATION OF NORMATIVE LEGAL ACTS IN THE FIELD OF HEALTH VIDEO DISPLAY TERMINALS USERS AND THEIR SAFETY WITH INTERNATIONAL STANDARDS IN UKRAINE: magazine/ "Medicine today and tomorrow" - 60, 2013.
2. Demirchoglyan GG Computer Health. - M: Publishing Lukomorye, MB Tempo, New Center, 1997. - 256 p
3. Stepanova M. How to ensure secure communication with the computer. // Education. - 2003, № 2. - S.145-151.
4. Morozov AA Human ecology, computer technology and safety operator. // Journal of Environmental Education in Russia. - 2003, № 1. - S.13-17.
5. Zhurakovskaya AL The impact of computer technology on health user. // Bulletin of the Orenburg State University. - 2002, number 2. - S.169-173.
6. Ushakov IB et al. Evaluation of the physical characteristics of modern monitors personal computers from the position and nature of security standards activity. // Health and Safety. - 2002, № 7. - S.19-22.