
IMMUNE INDICES AND REACTIONS OF ADAPTATION

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Violation of immune mechanisms at the level of the organism significantly reduces its adaptability to a particular process, increases the likelihood of serious damage, and affects population processes. Therefore, the purpose of this study was to understand the mechanisms of adaptation and the impact of stressful situations, which allow us to re-evaluate the mechanisms of the appearance of various diseases of the immune system.

Keywords: adaptation, immune system, central nervous system, adaptation types, stress, activation reaction, training react.

The influence of different internal and environmental factors leads to development of reactions of adaptation in whole organism and in all organism's systems.

Organism's resistance, as well as immune one, depend on the type of the reaction of adaptation. According to L. Garkaviet (1990), there are several types of reaction of adaptation. Extreme factors lead to the development of stress reaction or reaction of hyper activation, influence of small intensity leads to training reaction development, influence of middle intensity leads to activation reactions development (quite or high).

The types of adaptation reaction are determining mainly by the rate of lymphocytes in blood. This rate depends on person's age. There is the special table to identify a type of adaptation reaction. Rates of other cells allow defining the level of reactivity.

The aim of this research is to analyze immune indices indifferent types of reaction of adaptation.

Heamograms of 60 healthy children (7–16 years old) have been analyzed to determine the type of the reaction of adaptation. The levels of several immune indices have been analyzed in different types of reaction of adaptation. We analyzed the levels of lysozyme (unspecific immune humoral factor), IgA, IgM and IgG.

We revealed the highest lysozyme level in reaction of quite activation ($8,59 \pm 0,48$ in comparison with $7,56 \pm 0,29$ in stress reaction, $8,27 \pm 0,28$ in training reaction and $5,59 \pm 0,72$ in high activation). We could see that lowest level was in high activation reaction.

The highest IgA level was determined in reaction of quite activation as well – $2,58 \pm 0,56$ ($1,62 \pm 0,52$ in stress reaction, $1,08 \pm 0,14$ in training reaction and $1,53 \pm 0,15$ in high activation). The lowest IgA level was in training reaction.

We could see no distinct difference in the levels of IgG ($9,85 \pm 1,68$ in stress reaction, $10,98 \pm 0,70$ in training reaction and $8,85 \pm 1,03$ in high activation).

Our investigation showed, that reaction of quite activation accompanied with the highest levels of all analyzed immune indices (lysozyme, IgA, IgM and IgG) in comparison with other types of reactions of adaptation (stress reaction, training reaction and high activation).

BIBLIOGRAPHY

1. Immunology in 3 volumes / Under. Ed. U. Pola. – Moscow: Mir, 1988.
2. Garkavi L. H., Evstratova O. F., Korobeinikova E. P. Morphofunctional characteristics of the organs of the thymic-lymphatic system in general nonspecific adaptation reactions caused by electrostimulation of the emotionogenic brain structures // Functional morphology of lymph nodes and other organs of the immune system and their role in immune processes. – M., 1983. – P. 40-42.

EXAMINATION OF THE EXTENT OF THE DRUG USE AMONG THE YOUTH

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Analysis of statistical data of health-care agency "Mogilev regional drug abuse dispensary" shows that from 2002 to 2005, the decline was observed in the number of drug addicts, but since 2006, it can be noted an annual increase of drug users who are registered in the regional drug abuse dispensary.

Keywords: drugs, psychoactive substances, drug use, abuse, addiction, drug addiction.

Today the issue of abuse of narcotic drugs and psychotropic substances is very serious. According to the World Health Organization, drugs ranked first among the culprits of premature death and already ahead of cardiovascular disease and malignant tumors. The scale and pace of the spread of drug addiction in the country are putting a question about the physical and moral health of young people, the future of a significant part of it, the social stability of our society already in the near future.

According to the Ministry of health of the Republic of Belarus the majority of drug users – persons under the age of 35 years (84,5 %). Of them under 15 years is 2,9 %, 15–19 years is 10,3 %, 20–24 years – 22,4 % 25–34 – 48,9 per cent. The proportion of secondary school students and University students in the population of all consumers of surfactants is of 14,0 %, and among drug (toxic) maniac is 6,7 %.

The analysis of statistical data of health-care agency "Mogilev regional drug abuse dispensary" shows that from 2002 to 2005, there had been a decline in the number of drug addicts consisting on the account in a regional narcological dispensary (2002 – 368; 2003 – 340; 2004 – 312; 2005 – 291 people). Since 2006, it can be noted an annual increase of drug users, registered in a dispensary in 2006 – 301 people, 2007 – 378, 2008 – 394, 2009 – 417 people, 2010 – 503 people, 2011 – 549 people, 2012 – 601 people, 2013 – 682 people, in 2014 – 718. 01.01.2015 total number of registered drug addicts, substance abusers and consumers of psychoactive substances – 978.

In the Republic drug situation is deteriorated significantly in recent years. The spread of drug abuse occurs at an alarming rate and has a tendency to flare: increased the consumption of narcotic drugs and psychoactive substances, the steadily growing volume of drug trafficking and the number of crimes committed on the ground of drugs and drug addiction, drug abuse is rapidly getting younger, increasing the number of minors purchasing the "experience" consumption of narcotic and psychotropic drugs, increases in the number of female drug users, a new dangerous phenomenon is the appearance of "family drug addiction", involvement in the drug abuse of young children by their parents, has increased dramatically the incidence of HIV infection, increased mortality from drug use, especially among children.

MOLECULAR GENETIC PROLIFERATION OF METASTATIC MELANOMA

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In the course of the research the relationship between the expression level of mir-214 and sex, age of the patient, stage, localization, morphotype and intensity of pigmentation of melanoma was studied.

Keywords: melanoma, microRNA, gene expression, melanocyte nevus

An actual problem of clinical oncology is the increasing incidence of melanoma and the relatively poor prognosis of the disease in the common forms. Melanoma is responsible for 80 % of deaths from malignant skin neoplasms, although in the structure of morbidity is not more than 10 % of the diseases in this group [1].

Polymorphisms in the genes BRAF, NRAS, c-kit and signaling pathways RAS / RAF / MEK / ERK are associated with the occurrence and progression of melanoma [2].

In recent years, it became known that a non-coding RNA plays a special role in the development of malignant tumors. MicroRNAs constitute a recently discovered class of non-coding RNAs that play a key role in the regulation of gene expression. It is considered that a violation of miRNA expression leads to carcinogenesis. It is known that at a melanoma of the skin, the expression of certain microRNAs that act as an oncogene or a suppressor gene is increased or decreased [3].

The purpose of the research is to study aberrant expression of miRNAs in patients with melanoma for assessing the prognosis of the disease.

Materials and methods of a research

In a research examined the level of microRNA expression by PCR in the tissues of melanoma and melanocyte nevi. 32 samples of skin melanoma I (40,6 %), II (59,4 %) stages and 10 samples of melanocytic nevi were used. For amplification in real-time fragments of cDNA of the genes of miRNAs used a set of "miScript SYBR Green PCR Kit" (Qiagen, Germany).

Results

The study found that the expression level of mir-214 in melanoma samples decreased (30,9 rel. units [25,3, 35,3]) compared with melanocytic nevi (33,4 rel. [31,4; 34,9]).

Men have the level of expression of this microRNA (31,0 relative units [29,0; 33,6]) slightly higher than in women (30,7 rel. units [25,3; 35,3]).