

Table 3

Indicators of antioxidant activity of juices containing strawberries

	Juices	A _{max} , %	C _{max} , %	IC ₅₀ ·10 ⁻² , %
1	strawberry + apple ("Odesski")	92	0,5	1,62
2	strawberry + chokeberry + raspberry + black currant + apple + grapes	91	0,5	1,41
3	strawberry + strawberry + chokeberry + apple	91	0,5	2
4	strawberry + apple ("Fruto nanya")	88	0,5	1,62
5	strawberries (juice from berries)	66	1	8,77

Due to the high content of flavonoids, the juices of berry crops can be considered highly effective inhibitors of free radicals. The increase in the variety of berries that make up the juice, leads to an increase in antioxidant activity, as it enriches the juice with various flavonoids.

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IMMUNOPHENOTYPIC CHARACTERISTICS OF PERIPHERAL BLOOD LYMPHOCYTES OF PATIENTS WITH SEVERE COMBINED IMMUNODEFICIENCIES

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Severe combined immunodeficiency – an extreme form of T-cell deficiency with or without B-cell deficiency and sometimes also low natural killer cell numbers, typically presents in infancy with pneumonitis, chronic diarrhea, and failure to thrive [1].

Keywords: severe combined immune deficiency, immunophenotype, T-, B-, NK-lymphocytes.

Severe combined immunodeficiencies (SCID) are the most life-threatening group of immunodeficiencies. Classical SCID is characterized by complete absence of T cells and the absence of other subsets lymphocytes depending on the genetic defect. In cases of immunodeficiencies atypical SCID with hypomorphic mutations T cell differentiation is partially maintained. The only effective method of therapy is substitution genetic defect of the immune system by transplantation of hematopoietic stem cells or gene therapy [2]. Without this treatment, the disease ends in a lethal outcome. In this regard, immunophenotypic characteristics of T- and B-lymphocytes in patients with SCID – is an actual trend in modern immunology.

Aim. To estimate the populations and subpopulations of peripheral blood lymphocytes in patients with SCID.

Materials and methods. The material for the study was the whole blood of SCID patients (patients with classical SCID (n=3), patients with atypical SCID (n=7)). Population and subpopulation of lymphocytes were determined by flow cytometry using monoclonal antibodies.

Results. The number of lymphocytes in the peripheral blood eight patients was within physiological values, one patient had lymphocytosis, and one had lymphocytopenia, when compared with the normal level. The physi-

ological parameters of lymphocytes of peripheral blood in the examined children with SCID are combined with significant and diverse disturbances in the population composition of lymphocytes. Thus, only three patients have normal CD3+ T cells percentages, in other cases, the number of CD3+ T cells is sharply reduced, the absolute values of CD3+ T cells are at the physiological level in 6 examined children. The absolute number of CD3+4+ T cells in six patients was reduced and only four patients had normal values. Analyzing the level of CD3+8+ T cells, there was a decrease in the level in seven patients, in three patients there was an increased level of these cells. Analysis of the percentage of CD19+ B cells showed a decrease in this parameter in two patients with a typical SCID, in patients with atypical SCID there was the physiological values of this cells, however, in a patient with a mutation in the gene encoding the recombinase RAG1, there was a sharp decrease the number of CD19+ B cells. Estimating the level of NK cells in the peripheral blood, there was a decrease in the number of these cells in patients with a typical SCID with mutations in the gene coding for a common gamma chain receptor for the interleukin 2 family, also in two patients there was an increase in the number of these cells and in 1 patient with atypical SCID, this indicator was reduced. When studying the levels of immunoglobulins in the peripheral blood of patients, the physiological values of IgG were noted in four patients, these indicators were due to the presence of maternal IgG in patients, the rest of the patients showed a decrease in the concentration of IgG. Also, patients showed a decrease in the concentration of IgM and IgA.

Conclusion. SCID is accompanied by a variety of disorders in the population composition of lymphocytes: a decrease in the number of T-lymphocytes, T-helpers, T-killers. SCID in the examined children is accompanied by a decrease in the levels of immunoglobulins until their complete absent.

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HEALTH ASSESSMENT OF THE POPULATION OF THE REPUBLIC OF BELARUS

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Based on the analysis of numerous data, it was found that when small doses of industrial toxicants are applied, the initial reaction of the organism manifests itself in the stimulation of protective mechanisms, which at the first stage does not affect the overall morbidity level. In the future, with prolonged exposure to chemical contaminants, the incidence may increase spasmodically. With the inclusion of adaptation and resistance mechanisms, morbidity rates may again return to the previous level, after which the next uptake will occur.

Keywords: environmental medicine, industrial pollution, etiology of diseases, environmental assessment.

The impact of pollutant chemicals in the atmosphere is multi-vector. The direct effects of atmospheric pollutants on humans, animals, plants and soil can affect the structure and functioning of natural ecosystems, including their ability to self-regulate. In addition, the sedimentation of atmospheric pollutants on environmental objects and their absorption by plants and animals leads to the penetration of chemicals into drinking water, food chains, and therefore serves as an additional source of human exposure, health, and also affects the quality of life [1–4].

Numerous literature data of both domestic and foreign authors show that air pollution by chemical substances has a negative impact on the population health. In recent years, the terms "eco-illness", "multiple chemical susceptibility syndrome", "environmental intoxication" according to the WHO definition is a "disease caused by the environment" [4].

Analysis of literature data indicates that the methodology of risk assessment is the most adequate methodology for fully taking into account and assessing the impact of environmental factors on public health, and according to experts, this method is widely used in practice.

At present, the ecological situation in the Republic of Belarus has developed as a result of the long-term functioning of the country's economic complex, which operates in the usual technological mode, emergency emissions of pollutants into the environment and their transboundary transfer [16].