

and now resides, and to study modern features of the state of health of donors. Voluntary bone marrow donors, according to testimony, should be examined before inclusion in the National Registry of hematopoietic stem cells and before bone marrow sampling on of heavy and the content of free light chains the immunoglobulins with a prophylactic purpose.

#### References

1. Andreeva N.E. On the possibility of a full recovery for multiple myeloma. *Terapevticheskiy arkhiv*. 1985; 17 (7): 7–10.
2. Andreeva N.E., Balakireva T.V. Heavy chain disease. In: *Clinical oncohaematology*. Volkova V.A., ed. [Klinicheskaya onkogematologiya]. Moscow; 2001: 463–6.
3. Baratova D.A. Comparative Characteristics of the Distribution of Alleles of HLA-class I and II patients with Multiple Myeloma and healthy individuals kirghiz nationality and residents of the North-West region of the Russian Federation.: Diss. St.-Petersburg; 2000.
4. Baratova M.A. Baratova DA Chronic renal failure in old age in primary-diagnosed patients with multiple myeloma immunochemical variant IgA // *Modern problems of science and education*. – 2014. – № 4; (Electronic Journal) URL: <http://www.science-education.ru/118-13926> URL: <http://www.science-education.ru/118-13926> (reference date: July 14, 2014).
5. Baratova D.A., Baratova M.A. Clinical-hematological features and prognostic significant factors in patients with multiple myeloma / *International journal of applied and fundamental research*. – 2015. – № 1; URL: [http://www.science-sd.com/460-24775\(11.06.2015\)](http://www.science-sd.com/460-24775(11.06.2015)).
6. Durie B.G.M., Salmon S.E. A clinical staging system for multiple myeloma: Correlation of measured myeloma cell mass with presenting clinical features, response to treatment, and survival. *Cancer*. 1975; 36: 842–54.
7. *Cancer Principles and Practice of Oncology* / Eds VT DeVita, S Hellman, SA Rosenberg. – Philadelphia: Lippincott-Raven Publishers, 1997.
8. Greipp R., San Miguel J., Durie B et al. International staging system for multiple myeloma. *Journal Clin Oncology* 2005; 23: 3412–3420.
9. Ludwig H, Bolejack V, Crowley J et al.. Survival and years of life in different age cohorts of patients with multiple myeloma. *Journal Clin Oncology* 2010; 28:1599-1605.

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#### THE STUDY OF THE ADAPTATION PROCESS TO THE EDUCATION AT THE PREPARATORY FACULTY OF THE MEDICAL UNIVERSITY OF GIRLS FROM FOREIGN COUNTRIES

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Two groups of girls 18-19 years were surveyed: primary group – students of the preparatory faculty for training foreign citizens; control group – students – citizens of the Russian Federation. The adaptive capabilities of the girls’ organisms were assessed according to statistical, geometrical and

spectral characteristics of heart rate variability. More than 40% of women–foreign citizens did not adapt to the changed conditions of life, which was manifested by the predominance of central mechanisms of heart rhythm regulation in relative functional rest and low level of functional reserves of the organism. The most sensitive indicator of functional reserves of the cardiovascular system is an index of centralization.

For various reasons adaptation process of foreign students proceeds with difficulties [1, 3]. To assess the state of adaptation mechanisms, manifestations of adaptive changes of the organism of participants of educational process heart rate variability (HRV) method is widely used. [2, 3, 4, 5].

The aim of the study was to assess the peculiarities of adaptation of girls from foreign countries studying at the preparatory faculty of Rostov state medical University on indices of HRV. The study involved 2 groups of girls 18-19 years old: the primary one – foreign students (36 people); the control group – students – citizens of the Russian Federation (31 people). The body’s adaptive abilities of the girls was assessed by HRV, analyzed in five-minute segments of ECG, registered in terms of relative functional rest. Mechanisms of regulation of cardiac rhythm were assessed according to statistical, geometrical and spectral characteristics [5]. Most statistical and geometric indices of HRV among girls of the primary group differed significantly from those of girls in the control group and testified lower reserve adaptation possibilities. The duration of RR-intervals and their dynamics of most of the girls from the main group indicated the increased tone of the sympathetic centers. The ratio of the sympathetic and parasympathetic effects was evaluated using Baevsky tension index (TI). Mean group values in the primary group were significantly higher than in the control group. 77.4% of girls in the control group had balanced sympathetic and parasympathetic impact on cardiac rhythm; 55.6% of girls in the primary group and the rest had the tension of the sympathetic centers of various intensity. All the patients from the control group had moderate tension, from the primary group – 27.7% of women had moderate tension, the rest had prominent or overtension, which is an indicator of violations of the adaptation mechanisms. The disturbance of the autonomic balance with a predominance of sympathetic influences on girls of the main group was also confirmed with significantly low power HF and their significantly lower contribution to TP and more TP representation in LF. According to sympathovagal index LF/HF the autonomic balance or moderate tension of the parasympathetic centers, which is typical for functional rest, was revealed in the majority of women (93.5%) from the control group. Only 6.5% of girls had moderate tension of the sympathetic part of the autonomic nervous

system (SP ANS). In the main group moderate and prominent tension of SP ANS were detected in 41.7% of girls and the autonomic balance or moderate tension of the parasympathetic centers in the rest of the surveyed. Another important indicator of the ratio of regulatory influences on heart rate is the index of centralization (IC). Significantly increased values of IC were detected in girls from the primary group: 70.5% of them had central mechanisms involved in the management of cardiac rhythm in conditions of functional rest, whereas only 12.9% of girls had that in the control group.

Thus, according to the heart rate variability indexes, we detected that more than 40% of female students at the preparatory faculty for foreign citizens had unsatisfactory adaptation to the changed conditions of life, that was manifested by the predominance of central regulation mechanisms of heart rhythm in relative functional rest and low level of functional reserves of the organism. The most sensitive indicator of functional reserves of the cardiovascular system is an index of centralization.

#### References

1. Abakumova L.V., Khrenkova V.V. Diagnosis of subject competences in biology of foreign students from the preparatory faculty // *European journal of natural history*. – 2017. – № 2. – P. 28.
2. Abakumova L.V., Khrenkova V.V., Roginskaya A.A., Yakusheva E.N. Assessment and prediction of students' successful adaptation according to the heart rate variability indicators // *Neurocomputers, development, application*. – 2015. – № 4. – P. 14–15.
3. Khrenkova V.V., Abakumova L.V., Gafiatullina G.Sh. Express-evaluation of foreign students adaptation successfulness in conditions of intensive studying at the preparatory faculty of the medical university // *Biomedical electronics*. – 2016. – № 5. – P. 58–59.
4. Mikhailov V.M. Heart rate variability. Experience of practical application of the method. – Ivanovo, 2000. – 200 p.
5. Shlyk N.I. Heart rate and type of regulation in children, adolescents and athletes. Publishing house "Udmurt University". 2009. – 259 p.

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#### DETERMINATION OF THE LIMITATION OF VITAL ACTIVITY USING FUNCTIONAL CLASSES IN CHILDREN WITH INFECTION

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Implementation of the International Classification of Functioning, Disability and Health (ICF, 2001), WHO requires detailed development of the application of this classification for HIV / AIDS in children, which will determine the degree of disability, rehabilitation potential and prognosis for this population.

In HIV-infected children at risk of disability, the following disabilities were identified: self-care, orientation, communication, learning, behavioral control, progressing as immunodeficiency increases and are shown in Table.

To solve this problem, we have adapted a methodology for determining functional classes (FCs) in order to establish the degree of disruption of functions, the main categories of vital activity in children with HIV / AIDS [363].

We have developed clinical and expert criteria for the degree of impairment of body functions, limitations on vital functions due to HIV / AIDS, developed functional classes and methods for their use in medical and social expertise in children with HIV / AIDS and in persons at risk of disability. To determine the functional disorders, we took into account the clinical symptoms, the stage of the disease, the degree of immunodeficiency, the viral load, the presence of concomitant diseases, aggravating the course of the underlying disease, complications.

The severity of violations in functional classes in children with HIV / AIDS and the risk of disability has allowed us to distinguish the following grades: FC 1 (0-25%) – mild violations; FC 2 (26-50%) moderate disorders; FC 3 (51-75%) – severe disorders; FC 4 (76-100%) is a significant violation, which was determined according to clinical and laboratory methods of the study.

#### Conclusion

The limitation of certain categories of life activity and disability, as a rule, results in a health disorder predominantly with moderate, severe and marked persistent impairments of body functions (II, III, IV degree). Minor disorders of body functions (I degree) are relatively rare causes of disability and disability.

#### Quantitative assessment of disability in HIV-infected children at risk of disability

Functionality class	Clinical and laboratory characteristics	Limitation of life activity
1	2	3
FC 1 (0-25%)	<ul style="list-style-type: none"> <li>Asymptomatic flow</li> <li>Persistent generalized lymphadenopathy (PGL)</li> <li>Level CD4 – клеток более 25%</li> <li>Level RNA HIV &lt; 10 000 copies/ml (in children older than 5 years)</li> </ul>	Self-service-FC0 Orientation-FC0-1 Communication-FC0-1 Training-FC0-1 Behavior Monitoring -FC0-1 Motor activity-FC0-1