EDITOR-IN-CHIEF'S PREFACE TO ISSUE 5, 2024

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Most of the articles in this issue are devoted to the main frontiers of medical science. A group of authors from Astrakhan and Moscow under the leadership of Member of the RAS D.A. Sychev (Abdullaev M.A. et al.) considered the use of artificial intelligence in pharmacogenetic studies. O.B. Kuleshova, E.A. Domonova and Academician V.G. Akimkin (Moscow) conducted a retrospective epidemiological analysis of the incidence of cervical cancer from 2008 to 2021 in Russia and proved the effectiveness of the preventive measures taken to combat the disease.

A series of articles focuses on both COVID-19 and post-COVID syndrome. This is a review of the literature by V.A. Beloborodov et al., (Irkutsk), where attention is drawn to the need to prevent clinical and neurological disorders in severe COVID-19 in the intensive care unit. This work is related to the study of E.A. Beygel et al. (Irkutsk, Angarsk), who revealed the involvement of the cardiovascular, nervous and endocrine systems in the pathological process in patients with comorbid pathology, with the leading damage to central nervous system and psychic sphere. This series continues with the article by N.A. Ishutina and I.A. Andrievskaya (Blagoveshchensk), who showed that the most significant factors increasing the risk of pregnancy complications in women with moderate COVID-19 were high levels of arachidonic acid, cyclooxygenase 2 and prostaglandin E2 in the blood. L.S. Shchegoleva et al. (Arkhangelsk) showed that women who have had COVID-19 have cell-mediated cytotoxicity ($CD8^+$, $CD16^+$) and activation of the monocytic system for 12 months. This series is completed by the work of Crimean scientists (Beloglazov V.A. et al.), who have successfully used sets of essential oils to rehabilitate smell disorders after COVID-19.

Similar in subject are the works on the study of morbidity and viruses of the zoonotic spectrum. Thus, T.A. Bayanova et al. revealed an unfavorable situation in the Irkutsk region in terms of the incidence of respiratory infections and low coverage of the population with influenza vaccinations. For the first time, the similarity of genomes and potential determinants of virulence of strains of the tick-borne encephalitis virus of the European subtype isolated from patients in the Asian part of Russia and Europe were shown. In the work of N.A. Liapunova et al. (Irkutsk), a promising quantitative polymerase chain reaction was developed to assess the expression of the "household" genes *ACTB* and *SDHA*, which is important for assessing the gene expression of mammalian hosts of zoonotic infections in normal and pathological conditions.

A number of works are related to the peculiarities of health and diseases in the inhabitants of the North. In the article by I.V. Averyanova and O.O. Alyoshina (Magadan) it is shown that northern men, when the temperature curve crosses zero in October-November express relative "hypercortisism", activation of the insular apparatus, an increase in insulin levels and the development of insulin resistance are observed. L.I. Kopylova, A.A. Tappakhova and T.Ya. Nikolaeva (Yakutsk) based on the studying of northern men with Parkinson's disease proposed a prognostic formula for determining the level of quality of life of patients with the studied pathology. In the same sector, attention is drawn to the actual experimental work of E.P. Antonova et al. (Petrozavodsk) on the assessment of the effect of North-West of Russia photoperiodic conditions and administration of exogenous melatonin on the Syrian hamster psycho-emotional status. This is important not only for understanding the behavior of seasonally breeding species, but also for the regulation of photoperiodicity in humans in the North.

The issue contains studies of great relevance related to the health of women, children and adolescents, which is important for understanding demo-

graphic issues. Moreover, this is of concern not only to Russian, but also to foreign researchers. In the work of M.D. Usmanova et al. from Uzbekistan (Andijan) the importance of controlling the function of the thyroid gland during pregnancy is emphasized, the relationship between hypertension and age, the level of activity of the gland and obesity has been established. M.A. Darenskaya et al. (Irkutsk) found that in Russian women the combined metabolic syndrome with polycystic ovary syndrome in comparison with monosyndrome is accompanied by a greater number of changes than in Buryat women. The article of Belarusian scientists N.M. Shapetska et al. (Minsk) on the successful use of allogeneic blood plasma enriched with soluble platelet factors for the treatment of the skin thermal burns in children is interesting for clinical practice.

T.A. Astakhova et al. (Irkutsk) devoted the article to the current, but rarely studied problem of eating disorders in rural adolescents, and the prerequisites for the formation of eating disorders were revealed in both boys and girls. In the article by S.E. Bolshakova et al. (Irkutsk), using a large amount of material, it is shown that failure to observe sleep hygiene in teenage girls disrupts the circadian rhythm that regulates the menstrual cycle. This will help in the early diagnosis and prevention of sleep disorders and menstrual dysfunction. In this section, there is a review of the literature by M.V. Gomellya et al. (Irkutsk, Moscow), who showed that markers of antiphospholipid syndrome are detected in all variants of juvenile idiopathic arthritis.

Several articles are devoted to the problems of ophthalmology, in particular, the devices and principles of keratometry (Boiko E.V. et al., Saint Petersburg). E.S. Taskina et al. showed a violation of the balance between the parameters of the system "lipid peroxidation – antioxidant protection", the dependence of lipid peroxidation on autoimmune inflammation in the orbit in endocrine ophthalmopathy. In another article, A.O. Direev and E.V. Egorova (Novosibirsk) described the common entrapment and tear of the intraocular lens haptic during implantation, as well as the methods of their surgical correction.

The work of a team from Yaroslavl, Belgorod and Moscow, headed by the Member of the RAS A.L. Khokhlov, is important for non-invasive diagnostics of the myocardial condition. Direct positive correlations of changes in energy metabolism in blood leukocytes and heart cells under the influence of cytoprotectors have been obtained.

N.N. Omelchuk et al. (Moscow) developed an experimental model (*Danio rerio* juvenile fish*)* for assessing the protective effect of radioprotectors. This is important for testing the effect of medications in radiation injuries, as well as assessing the possibility of their use in radiation therapy.

The study by V.V. Bykov et al. (Pushchino) on obtaining methionine aminopeptidase (MAP) based on the genome of the bacterium T*hermus thermophiles* and confirming of the functional activity of MAP is very promising. The enzyme can be used in various branches of biotechnology.

S.N. Styazhkina et al. (Izhevsk, Udmurtia) confirmed in an experiment the antimicrobial effect of a domestic antiseptic for use in surgical practice.

Many specialists will be interested in the review by P.O. Fedorova (Moscow), which examines the advantages and disadvantages of the method of CAR natural killer cell therapy and methods of activation and expansion of natural killer cells, as well as the aspects of creating a full-fledged biomedical cell product.

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