and vitamins (B vitamins, etc.). Purine and pyrimidine bases are a part of nucleic acids - material carriers of heredity, which play a crucial role in the processes of protein biosynthesis.

Among various heterocyclic compounds, aromatic heterocycles have become widespread in nature, and they form the structural basis of the molecules of many drugs. The most important of these are pyrrole, pyrazole, imidazole, pyridine, pyrimidine, furan, thiophene, indole, purine, benzimidazole, and others.

Thus, heterocyclic compounds have the widest potential for diversity, and they are indeed common (especially in nature). It is no coincidence that many of the published works on organic chemistry deal with heterocyclic compounds. This is also due to the fact that they are of great interest to chemists as convenient models for the study and development of theoretical principles of organic chemistry and the theory of structure.

Numerous drugs and most heterocyclic compounds that have practical application are not extracted from natural raw materials, but produced industrially. However, the source of inspiration for organic chemists is the study of natural products, which formed the basis for further research. Examples include the discovery of vat dyes based on the indigo structure and the ongoing search for new antibacterial drugs based on the / 3-lactam structure of penicillin.

Heterocyclic compounds are of great importance. Many of them are the basis of alkaloid molecules - important drugs, involved in the construction of some amino acids that are part of proteins. Some heterocycles are the basis of natural dyes, such as green matter of plants - chlorophyll and others.

The importance of heterocyclic compounds is obvious. Suffice it to say that they ensure the very functioning of life on the Earth, making a decisive contribution to the mechanisms of heredity, respiration, the action of the central nervous system and a number of enzymatic systems. Today, heterocycles are many hundreds of highly effective drugs, antibiotics, pesticides, the basis for the creation of valuable dyes, phosphors, heat-resistant fibers and many other practically useful substances.

It is logical to expect that with such great importance in the chemistry of living things, they should have found application in medicine. This is true. According to the latest data, of the 1,070 most widely used synthetic drugs, 661 (62 %) were heterocycles. Everything stated above is a small part concerning the interest in heterocycles.

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GENDER ASPECTS OF CONNEXIN 26 (GJB2) GENE POLYMORPHISM IN CHILDREN WITH HEARING LOSS

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Nowadays, hereditary hearing impairments with the development of deafness are most associated with the connexin-26 gene GJB2 (gap junction protein), localized in 13q11-q12. Mutation of 35delG is deletion of one of the six nucleotides of guanosines (G) between positions 30 and 35, including the formation of a stop codon in nucleotide 38, resulting in premature cessation of connexin protein 26. It results in disorders of endolymph homeostasis in the inner ear, leading to hearing loss mainly of sensorineural origin.

The aim of the study was to analyze the gender characteristics of the frequency distribution of polymorphic variants of connexin 26 genes (GJB2, c.35delG) (rs80338939) in children with hearing impairments of sensorineural and conductive genesis.

The prospective study included 102 children aged 8 to 18 years (average 11.5 ± 3.15 years) with hearing impairments, whose parents signed an informed consent to participate in the study, followed by a set of anamnestic-clinical and laboratory-instrumental examinations (otoscopy, speech audiometry, tone audiometry, tuning fork examinations, tympanometry). Study of gene polymorphism of GJB2 (c.35delG) was performed by polymerase chain reaction using Taq-DNA polymerase and specific primers. The obtained results were statistically processed using the

program "Statistica 7.0" software with the definition of Student's criteria (t) and non-parametric χ^2. The differences were considered significant at p<0,05.

Among the examined children 68 (66.7%) ones had sensorineural hearing loss, 34 (33.3%) - conductive hearing loss. There were 36 girls (35.29%) and 66 boys (64.71%), an average age of children was 13.90 ± 3.11 years. The control group consisted of 60 practically healthy children, with the appropriate distribution by sex: girls - 22 (36.67%), boys - 38 (63.33%) (χ^2<1.0, p> 0.05). According to the age criterion, the comparison groups were comparable (p> 0.05).

The analysis of the obtained results showed that the mutation of the GJB2 gene in the homozygous state occurred among children with sensorineural hearing loss - in every second (50.0%), among children with conductive hearing loss - in 11.77% of cases, while in the control group - with a frequency of 5.0% (χ^2 = 38.32, p <0.001). Among children with sensorineural hearing loss, mutation of the GJB2 gene (c.35delG) in boys was significantly more common than among girls - by 20.58% (χ^2= 7.69, p = 0.005). While the absence of mutations was more often observed in children of the control group and with conductive hearing loss - both boys and girls than in those with sensorineural hearing loss: 25.98% (χ^2= 8.71, p = 0.003) and 19.02% (χ^2= 5.91, p = 0.015), and 26.47% ($\chi^2$2 = 6.56, p = 0.01) and 11.76% (p> 0.05), respectively .

Thus, mutation in the GJB2 gene (c.35delG) is significantly more common in boys with sensorineural hearing loss than in girls.

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PROSPECTS FOR APPLICATION OF OMEGA-3 POLYUNSATURATED FATTY ACIDS IN IMMUNONUTRITIONAL PREVENTION OF RESPIRATORY DISEASES

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The theory of immunonutritional prevention of viral diseases is gaining considerable popularity among scientists and clinicians. In the context of increasing socio-economic burden of respiratory diseases, omega-3 polyunsaturated fatty acids (PUFA) are of great importance in nutritional immunocorrection.

The aim of the study was to analyze research data on the sources of omega-3 PUFA, their impact on human health and prospects for their application for immunocorrective nutrition in the pandemic COVID-19.

PUFAs are precursors of glycolipids, phospholipids, eicosanoids, which form a complex regulatory matrix to maintain intracellular homeostasis at the appropriate level [Xue H., Wan M., 2006]. They are an important source of energy, structural components of cell membranes, as well as regulators of gene expression that affect the metabolism of lipids, carbohydrates, proteins, cell growth and differentiation [Gula NM, Margitich VM, 2009].

A significant role in inhibiting the inflammatory process is played by eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), which are present at the site of inflammation and are transformed into special mediators (resolvins, proteins, maresins) under the influence of enzymes [Basil et al., 2016; Rogero M. et al., 2020].

Omega-3 fatty acids have been shown to reduce the amount of reactive oxygen species and proinflammatory cytokines (tumor necrosis factor α, β-interleukin (IL) IL 1β, IL 6, IL 8), reduce NF-κB activation, thereby preventing translocation of nuclear p65 NF- κB, as well as minimize the synthesis of cyclooxygenase 2. EPA and DHA help to resolve the inflammatory process and accelerate the repair of various tissues, including SARS-CoV 2-induced damage to the respiratory system [Messina G. et al., 2020; Rogero M. et al., 2020].

F.BourBour et al. (2020) believe that a balanced diet and supplements that contain "pure" nutrients may play a leading role in the prevention of COVID 19. It has been suggested that omega-3 fatty acids can reduce the severity of inflammation, correct respiratory disease, prevent development of thromboembolic complications in SARS-CoV 2 infection [Sorokin A. et al., 2020].