male hamsters, that result probably depends on their sex and age aspects of hormonal status. The most significant impact on food behavior in hamsters with metabolic syndrome was demonstrated by letrozole.

Conclusions. In the conclusion, our study shows the significant impact of aromatase inhibitors on the correction of food behavior disorders caused diet-induced metabolic syndrome in hamsters of different age and sex. These results suggest the importance of further pre-clinical and clinical researches on treatment of metabolic syndrome by aromatase inhibitors and the potential possibility of using this type of treatment into clinical practice in some groups of patients.

INVESTIGATION OF 1,3-OXAZOLE-4-IL-PHOSPHONIC ACID DERIVATIVE EFFECTIVENESS FOR THE ARTERIAL HYPERTENSION TREATMENT

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Introduction. 1,3-oxazole-4-yl-phosphonic acid derivative is a new original compound, which is currently being studied as an antihypertensive agent.

Aim. Evaluate the effectiveness of antihypertensive action of oxazole derivative in rats against the background of formed steady arterial hypertension.

Materials and methods. The determination of blood pressure and heart rate was carried out by sphygmomanometric method at the Ugo Basele installation (Italy, 2005). The studies were conducted on the Wistar line rats, which modeled steady arterial hypertension by salt drink of 1% sodium chloride solution for 21 days. After this, the tested compound was administered once in a dose of 25 mg/kg (ED_{50}) intraperitoneally.

Results and discussion. At the administration of 1,3-oxazole-4-yl-phosphonic acid derivative at a dose of 25 mg/kg of body weight, the arterial pressure declined in the form of a tendency after 1 hour. Over time, the antihypertensive effect of the compound intensified and after 3 hours a decrease in blood pressure of 14% ($P < 0.05$) was observed regarding the data recorded in animals at 21 days of salt loading. The antihypertensive effect of the studied oxazole derivative was maintained and increased significantly during 24 hours after single administration, which was shown by a decrease in blood pressure of 27.0% ($P < 0.05$) relative to data recorded in animals with arterial hypertension.

Conclusions. 1,3-oxazole-4-yl-phosphonic acid derivative at a dose of 25 mg/kg shows a hypotensive effect at single intraperitoneal administration. The latent period of the compound is less than 1 hour, and the duration of the effect is more than 24 hours.

THE MAIN TYPES OF ATPases IN DIFFERENT COMPARTMENTS OF THE CELL IN CONNECTION WITH THEIR BIOLOGICAL FUNCTION

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Introduction. The ion flow into and out of the cell, as well as into and out of some organelles, plays a very important part in metabolism regulation. Transfer of ions through biological membranes is often coupled with energy consumption. That's because in norm we have certain ion gradients via membranes, and every time such gradient is changed, it should then be corrected. ATPases are enzymatic complexes, which break down ATP molecules, thus facilitating ion movement.

Aim. The aim of our work was to analyze available data on the main types of ATPases, their location in the cell, making the emphasis on biological functions. Also we were interested in important peculiarities that are specific for each ATPase type.

Results and discussion. To the main types of ATPases we may refer so-called P-, V- and F-types of such complexes, taking into account that the last two ATPases are proton pumps driven by ATP. V-type (vacuolar) ATPases were found in many organisms: lower and higher plants as well as lower and higher

animals. Their key function is acidification of the internal medium of vacuoles, lysosomes, the Golgi apparatus, endosomes, and secretory vesicles (e.g. neuroendocrine secretory granules) in animal cells. V-ATPase is a multisubunit enzyme. In humans such subunits are encoded in 25 genes. Structurally V-ATPase resembles the well-studied complex of F-type ATPase - consists of an intramembrane part (domain) V_0 for protons to pass it through, and V_1 domain which possesses the ATP hydrolase activity. F-ATPases are connected with the mitochondrion (bacterial plasma membranes and chloroplast thylakoid membranes also). The protein subunits of F-ATPase are encoded in 18 human genes. F_0 domain is located in the inner membrane and allows a proton flux both into and out of the mitochondrial matrix. F_1 domain looks like a small mushroom in which "head" ATP synthesis or hydrolysis occurs in connection with the direction of proton flow. F-ATPases supply human cells with a large amount of ATP.

P-type ATPases (P – phosphorylation, necessary for the function cycle) is a large group of cation transporting complexes that use energy of ATP. Na^+/K^+-ATPase (9 encoding genes), Ca^{2+}-ATPase (8 encoding genes) are among the most well-known enzymes. Cu^{2+}-ATPase, Mg^{2+}-ATPases, H^+/K^+-ATPase (nongastric) and some other species belong to transporting P-ATPases also.

Conclusions. So we have 3 main types of ion transporting ATPases – V-, F- and P-type. They are practically all multisubunit complexes. ATP supplies energy for the functioning of these enzymes that are widely spread in different living organisms.

PREVENTION OF SOME TOXIC MANIFESTATIONS OF MEBENDAZOLE TREATMENT BY USING MULTIVITAMIN COMPLEX

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Introduction. The correction of drug toxicity is a topical issue of modern pharmacology and medical biochemistry. This is especially specific for therapy, which requires high doses of organotoxic drugs, for example the treatment of echinococcosis with high doses of mebendazole, which has a pronounced depressive effect and induces an encephalopathy in some patients.

Aim. In previous experiments, it was marked the ability of the multivitamin complex to reduce the negative effect of mebendazole. The purpose of this experiment was to assess the effect of vitamins on mebendazole neurotoxicity.

Materials and methods. The experiment was conducted on 30 female rats, divided into 3 groups. As a vitamin complex we used Vitrum (USA). The experiment period was 7 days. Administration of vitamins has conducted once a day in an hour after mebendazole for a week. The doses for animals ware calculated based on the average daily human therapeutic dose and the intraspecific differences. The effectiveness evaluation was determined by the psychological tests.

Results and discussion. Mebendazole intoxication induced anxiety and depression in the experimental rats. However, the combination of this agent with the multivitamin complex led to the decrease in the indicators of anxiety and depressive effect, which were estimated by psychological tests conducted in comparison with the control group.

Results of the open field show an increase in the number of crossed squares by 65%, the interest in the openings increased by 48%, and attempts to examine the vertical wall by 84%. The number of defecations decreased by 29% and urination - by 52%. The number of grooming acts increase by 83% in compared with the control pathological group. In the test "behavioral desperation" it was shown decrease in total immobilization time by 69% and the number of acts of immobilization by 49%. The data of the behavioral test "cross-labyrinth" indicate an extension of the latent period of the entrance to the dark sleeve by 51%, the lengthening of the stay in the light sleeve by 49%, and the increase in transitions by 17% .

Conclusions. The results of the study show a positive effect of vitamins-antioxidants on high dose mebendazole-induced neurotoxicity and depression. This finding can help improve existing regimens for the treatment of parasitic diseases