genetic disorders. Iodine deficiency diseases, in their prevalence and manifestations, constitute a significant problem for many countries in the world. Elimination of iodine deficiency means solving one of the problems of mankind.

The **aim** of this study was against to study the effect on thyroid function of 30% tincture from Genista tinctoria with experimental mercazolil-induced hypothyroidism carried out.

Materials and methods. Experimental studies were performed on white non-linear male rats with mercazolil-induced hypothyroidism model for 34 days. Animals were divided into 5 groups: 1 - intact control, 2 - control pathology, 3 - 30% ethanol, 4 - Iodomarine, 5 - 30% tincture of grass from Genista tinctoria. At the end of the experiment, the animals were withdrawn from the experiment by decapitation and serum levels of thyroxine (T4) and triiodothyronine (T3) were determined by the enzyme immunoassay.

Results and discussion. As a result of the study, it was found that the T3 and T4 levels in the group of control pathology were 1.4 and 2.6 times lower than in the group of intact animals. In the group of animals treated with 30% ethanol, the content of T3 and T4 decreased by 1.7 and 2.5 times, respectively, and was at the level of the group control pathology. The use of iodomarin increased the levels of T3 and T4 by 1.2 times in comparison with the control pathology. Course introduction of 30% tincture of grass from Genista tinctoria contributed to an increase in the concentration of triiodothyronine in 1.5, 1.9 and 1.4 times compared with the group of control pathology, 30% ethanol, Iodomarin, respectively. The level of thyroxine in the experimental group was 1.6, 1.5 and 1.3 times greater in comparison with the group of control pathology, 30% ethanol, Jodomarin, respectively.

Conclusions. The use of 30% tincture from Genista tinctoria has a corrective effect on the thyroid gland with hypothyroidism. This is evidenced by an increase in the concentrations of iodine-containing hormones.

THE EFFECT OF AROMATASE INHIBITORS ON FOOD BEHAVIOR IN HAMSTERS WITH EXPERIMENTAL DIET-INDUCED METABOLIC SYNDROME

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Introduction. Metabolic syndrome is harmful disease, which includes combination of several most frequent conditions: obesity, dyslipidemia, insulin resistance and cardiovascular disease. Nowadays, metabolic syndrome is spread all over the world regardless of geographic location and economic situation, and it varies from 7% to 84% in different regions of our planet. Metabolic syndrome is the common disease that mostly manifests in insulin resistance and obesity. Sex hormones imbalance caused by increased peripheral aromatase activity is also plays an important role in aggressive clinical behavior of metabolic syndrome with overweight and obesity. The most common condition that changes the ratio of sex hormones is the enhancement of peripheral aromatase activity caused by fat weight gain, that also may cause food behavior disorders. In view of the foregoing, the pharmacological correction of peripheral aromatase activity needs to be examined as a method of metabolic syndrome and obesity therapy.

Aim. Study of the effect of aromatase inhibitors on food behavior in the experimental metabolic syndrome has become the objective of this research.

Materials and methods. We evaluated the influence of third-generation aromatase inhibitors (exemestane, letrozole, anastrozole) on food behavior in hamsters of different age and sex with diet-induced metabolic syndrome (high-calorie diet containing large amount of fat and carbohydrates, especially fructose, for 6 weeks. Preparations daily dose for hamsters were calculated by the animal equivalent doses coefficient from human therapeutic doses, and the treatment period was 21 days. In this experiment we measured the frequency of food intake and serum leptin and ghrelin levels in hamsters.

Results and discussion. In each group of animals with diet-induced metabolic syndrome after 21-days treatment course we recorded improvement of all or several parameters of food behavior. Under the aromatase inhibitors treatment the frequency of food intake decreased in 2,6-3,5 times, leptin serum level decreased in 18-28% and ghrelin serum level – in 14-22%. The most efficiency was indicated in mature

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