

mechanism. Repeated use of cocaine and amphetamine leads to the depletion of dopamine stocks, which is accompanied by insufficient excitement of the reinforcement system with the arrival of a "normal" impulse. This manifests itself as a fall in structure, a feeling of sluggishness, weakness, malaise, boredom experience, emotional discomfort, and a depressive condition.

In the treatment of these types of dependence, antidopaminergic agents, disulfiram and antidepressants are used to influence mood swings in people in the early withdrawal syndrome.

**Conclusions.** As a result, an understanding of the mechanisms of dependence on these funds will allow the development of drugs for the treatment of these types of dependence.

## VITAMIN D DEFICIENCY AND METABOLIC SYNDROME

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**Introduction.** Classical ideas about vitamin D are associated with its important role in calcium-phosphorus homeostasis and the influence on bone mineral density. However, this does not limit the biological effects of vitamin D. It also affects other physiological processes in the body, including modulation of cell growth, neuromuscular conduction, immunity and inflammation. Recently, significant material has been accumulated on the relationship between vitamin D deficiency and obesity, insulin resistance, adverse effects on insulin secretion, and glucose tolerance.

**Aim.** Carry out an analytical review of the role of vitamin D in the development of metabolic syndrome.

**Materials and methods.** Data analysis of literature and Internet sources.

**Results and discussion.** It has been established that insufficiency of vitamin D leads to insulin resistance and increases the secretion of insulin, and, ultimately, leads to the emergence of a metabolic syndrome. There is a hypothesis about the "ionic" theory of the development of arterial hypertension, type 2 diabetes, obesity and other manifestations of the metabolic syndrome, which manifests itself in increasing intracellular calcium concentration, decreasing intracellular magnesium and pH. Low serum calcium levels due to limited consumption of food and vitamin D deficiency lead to a secondary increase in parathyroid hormone, which in turn causes an increase in intracellular calcium concentration leading to increased preadipocyte differentiation into adipocytes and the development of obesity. There is evidence that increased intracellular calcium enhances the effect of  $11\beta$ -hydroxysteroiddehydrogenase type 1 on adipocytes, which, like angiotensin II, leads to increased cortisol production in these cells, causing the progression of both hypertension and obesity. There is a so-called "vicious circle" - on the one hand, obese people have a lowered level of vitamin D, on the other hand, vitamin D deficiency is a risk factor for obesity, type 2 diabetes and other components of metabolic syndrome.

**Conclusions.** Thus, vitamin D deficiency has a negative impact on human health and is independent risk factor for the development of metabolic syndrome components. To increase the effectiveness of primary and secondary prevention of cardiovascular diseases and metabolic syndrome, it is necessary to maintain vitamin D at the optimal level.

## INFLUENCE OF VAGINAL ADMINISTRATION OF THE NEW GELS TO BEHAVIORAL AND EMOTIONAL REACTIONS IN FEMALE RATS WITH ESTROGEN DEFICIENCY

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**Introduction.** Neuroendocrine alteration in the women organism during menopause is often accompanied by the development of a climacteric syndrome with concomitant mental disorders (fear, anxiety, depression, etc.) that occupy a significant place in the symptomatology of menopausal disorders.

**The aim** of this work was to study the effect of new vaginal gels on the functional state of the central nervous system of spay female rats.

**Materials and methods.** The research has been carried out on 42 non-linear white female rats. The experimental animals have been kept in standard vivarium conditions of Central Research Laboratory of the National University of Pharmacy.

The condition of estrogen deficiency in female rats was caused by bilateral spay. The animals have been divided into the following groups: 1 - intact control; 2 - sham-operated females; 3 - control pathology - spay animals; 4 - spay rats treated with gel containing 5% of glucosamine hydrochloride (GH) at a dose of 22.7 mg/kg; 5 - spay rats treated with gel containing hop extract and ascorbic acid (HE + AA) at a dose of 0.06 mg/kg; 6 - spay rats treated with gel containing hop extract and lactic acid (HE + LA) at a dose of 0.06 mg / kg; 7 - spay rats which received a comparative drug - "Ovestin" vaginal suppositories (active substance – estriol), produced by Organon Company, the Netherlands, series G44874 at a dose of 0.03 mg / kg (E). 6 animals have been taken out of each group.

After five weeks post operation (from the 35th day of the experiment), females were administered by vaginal gels of different composition and comparative drug 1 time per day during 28 days.

After termination of course of treatment with new vaginal gels, the state of the central nervous system was assessed using "an open field" test.

**Results and discussion.** In the study of locomotor, orienting-research activity and emotional state of spay female rats, a sharp decrease in their orienting-research activity (a decrease in the number of viewings in holes, vertical postures) was established. At the same time, there was an increase in the level of anxiety, which was accompanied by an increase in acts of defecation and urination.

All the studied parameters were normalized, which practically reached the level of intact animals after treatment with the drug for menopausal replacement therapy - suppositories with estriol.

With regard to the effect on behavioral and emotional reactions in spay female rats, the vaginal gel with GH was almost indistinguishable from the comparative drug, except for a less pronounced "hole exploratory behaviour" and an increase in the number of fecal boluses that accompany emotional expressions in animals.

Against the background of normalization of the horizontal and vertical motor activity of the female rats, the course administration of the gel with HE + AA did not reduce the manifestations of the vegetative reaction in the form of urinations and defecations.

After the course administration of the gel with HE + LA, the indicators of horizontal, vertical and orienting-research activity were completely normalized. Manifestations of anxiety decreased, as indicated by the compliance of the number of fecal boluses, urination and episodes with grooming-intact control.

**Conclusions.** Thus, the greatest pharmacological activity was inherent in the vaginal gel with hop phytoestrogens and lactic acid, it contributed to the elimination of behavioral disorders and manifestations of anxiety at the level of the comparative drug - suppositories with E.

## **THE STUDY OF HEPATOPROTECTIVE ACTIVITY OF DRY EXTRACT OF GINGER ON A MODEL OF EXPERIMENTAL HEPATITIS IN RATS**

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**Introduction.** Ginger - *Zingiber officinale* - one of the most popular spices in the world, which is widely used in folk medicine. The main components of ginger - gingeroles and shogaols provide its pharmacological properties. The research conducted at National University of Pharmacy has established that dry extract of ginger medicinal (Ginger) has expressed antidiabetic activity. This allows to assume its hepatoprotective properties.

The **aim** of the work was to investigate the hepatoprotective effect of Ginger on the model of acute hepatitis in rats.