

MINISTRY OF PUBLIC HEALTH OF UKRAINE  
NATIONAL UNIVERSITY OF PHARMACY

## **TOPICAL ISSUES OF NEW DRUGS DEVELOPMENT**

Abstracts of XXV International Scientific  
And Practical Conference  
Of Young Scientists And Student

April 18-20, 2018  
Kharkiv

Kharkiv  
NUPh  
2018

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**Topical** issues of new drugs development: Abstracts of  
XXV International Scientific And Practical Conference Of Young  
Scientists And Student (Kharkiv, April 18-20, 2018). – Kharkiv:  
NUPh, 2018. – 554 p.

ISSN 2616-6615

Book of Abstracts includes materials of Scientific and Practical Conference of Young Scientists and Students “Topical issues of new drugs development”. Materials are grouped according to the main directions of scientific, research and educational work of the National University of Pharmacy. Teoretical and practical aspects of the synthesis of biologically active compounds and development of medicinal substances on their basis; standardization of drugs, pharmaceutical and chemical-technological analysis, the study of raw materials and herbal remedies development, modern drug technology and extemporal recipe; biotechnology in pharmacy, modern advances in pharmaceutical microbiology and immunology, clinical trials of new drugs, pharmaceutical care for prescription and OTC-drugs, evidence-based medicine, modern pharmacotherapy, socio-economic studies in pharmacy, marketing management and pharmacoeconomics during the development, implementation and use of drugs, quality management in development, production and trafficking of drugs; information technologies in pharmacy and medicine; basics of pedagogy and psychology; social science; philology are presented. Also in book there are published material ob All-ukrainian contest of student scientific work on speciality “Pharmacy, Industrial Pharmacy”.

For a wide audience of scientists and pharmaceutaical and medicinal employees.

**UDC 615.1**

life routine which will improve sleeping process.

Talking about more difficult sleeping destructions, there is a recommendation to hold the treatment with a using of pharmacological agents. There are a lot of herbs with a sedative effect which can be used during the initial period of disease. For example chamomile, peppermint, linden, lemon balm, valerian have such pharmacological impact.

In case of long-term insomnia, that does not disappear after phytotherapy, sleeping correction is hold with a using of derivatives of barbituric acid (barbiturate). In spite of high efficacy of this drug, it should be noted its wide range of side effects, such as: dependence, nightmare dreams, allergic reactions (especially with skin localization) and withdrawal syndrome. The hypnosis method can be used as alternative to the pharmacological treatment.

There is a big variety of early diagnostics methods that help to establish the reasons of insomnia. For the instance, polysomnography gives the opportunities to reveal the violations of the respiratory system, in particular sleep apnea syndrome. This method also demonstrates oxygen concentration in blood, the number of chest and limbs movement, appearing of snoring, body position during the sleeping. Additionally it shows electroencephalography, electrooculography (eye movements) and electromyography (tone of the muscles). Based on the results, it is possible to make a correct decision about the reason of insomnia and its treatment. Cardio-respiratory monitoring is also a kind of polysomnography that includes the evaluation of respiratory and heart systems activity during the sleeping.

Multiple sleep latency test is another method of diagnostics of sleep disorders. The scheme of test is based on the numerous (approximately 5 times) falling asleep during the daytime. All opportunities of polysomnography are used to measure the vital indexes. The next step in the method is counting the average rate of the results that then should be compared with normal. It is possible to make a recommendation about correction of sleeping process based on the conclusions.

**Conclusions.** In this manner, sleep is a physiological process that determines the quality of cognitive function, emotional state, physical strength and in general human life.

## **CHARACTERISTICS OF THE COMPOSITION OF PHYTOPREPARATIONS FOR TREATING GASTROINTESTINAL TRACT DISEASES IMPLEMENTED ON PHARMACEUTICAL MARKET OF UKRAINE**

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**Introduction.** Diseases of the gastrointestinal tract (GIT) are one of the most prevalent diseases of internal organs, so their prevention and treatment are the most topical medical problems. Pharmacotherapy of functional disorders of the gastrointestinal tract is complex and one of the important components of this therapy are phytopreparations.

**Aim.** Analysis of the chemical composition of biologically active substances of phytopreparations for the treatment of functional and erosive-ulcerative gastrointestinal diseases and their assortment on the pharmaceutical market of Ukraine.

**Materials and methods.** Analytical study of the data of the information retrieval system of the company "Morion" for 2018.

**Results and discussion.** At the moment on the pharmaceutical market of Ukraine there are about fourty of medicinal products of exclusively plant composition, classified according to ATC classification to group A - agents affecting the digestive system and metabolism. The majority of both complex and monocomponent phytopreparations contain such chemical compounds as tannins, flavonoids, essential oils, coumarins, saponins, polysaccharides, organic acids. Virtually all drugs in this group have anti-inflammatory, antimicrobial and reparative effects. Analysis of the chemical composition of both complex and monocomponent drugs showed that tannins in the number of active ingredients, as compounds with a wide spectrum of therapeutic activity, are present in all preparations.

**Conclusions.** The analysis of the composition of biologically active substances phytopreparations

testifies to the significant urgency of creating new herbal preparations based on extracts from medicinal plants containing tannins in the composition, since they have pronounced anti-inflammatory, antimicrobial and reparative properties.

## ROLE OF ESTRADIOL IN PROVIDING SEXUAL FUNCTION IN MEN

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**Introduction.** The key role in providing sexual function (SF) in men is played by testosterone (T). A synergistic effect of the action of T in men is the most active estrogen - estradiol ( $E_2$ ), 20% of which, with the participation of the aromatase enzyme, is formed directly in Leydig cells, and 80% in peripheral tissues by aromatization mainly T.  $E_2$  on the mechanism of negative feedback affects the decrease in the amplitude and frequency of pulsatile secretion of luteinizing glomon (LH), which leads to a decrease in T synthesis in the testes, as well as an increase in the concentration of globulin binding sex hormones and, in turn, to a decrease in the amount of bioavailable T. At the same time, the experimental data obtained to date show that  $E_2$  is involved in the regulation of testicular function, which is confirmed by an increase in LH synthesis in estrogen- $\alpha$ -receptor deficient mice, as well as by some clinical observations that established an increase in LH in men with deficiency aromatase.

**Aim.** Establish the role of estradiol in providing sexual function in men.

**Materials and methods.** The study of the effect of  $E_2$  on SF is carried out by modeling the states of T deficiency (androgen deficiency) in men. Experimental studies are carried out by administering drugs that block the synthesis of T in animals.

**Results and discussion.** In one study, it was shown that men with androgen deficiency after prescribing T together with an increase in its concentration also experienced an increase in  $E_2$ , after which the administration of aromatase inhibitors along with a decrease in  $E_2$  led to a loss of libido and a weakening of the erection, the state of which was restored after their withdrawal. The same data are indirectly confirmed by another study in which men with aromatase deficiency were prescribed drugs T or  $E_2$ , which led to a significant improvement in their SF (the frequency of masturbation, sexual acts, erotic fantasies and libido) regardless of T.

In clinical observations during the modeling of the hypogonadal state in men with the use of gonadotropin releasing hormone antagonist, the role of  $E_2$  was found to be insignificant in comparison with T, in the maintenance of SF and the formation of aggressive behavior in healthy young men, as well as the association of a decrease in SF with a decrease in the level of  $E_2$  them. The key role in the activation of sexual behavior in men is given to the conversion of T to  $E_2$  at the level of the brain. Moreover, a number of experimental studies have shown that not only this process but also aromatase activity is controlled by estrogens, which made it possible to assume that not only the genomic effect of estrogens controls sexual behavior in men at the level of the brain and hypolalamo-pituitary axis.

Experimental data made it possible to establish that, in the conditions of blocking aromatase activity, an increase in the latent period of the cages was noted, which indicated the influence of  $E_2$  on sexual motivation, as well as a decrease in the number of ejaculations whose disorders developed more rapidly in animals with estrogen receptor blocking. The presence of estrogen receptors in the cavernous tissue of the penis, as well as the involvement of  $E_2$  in maintaining endothelial function in men, suggests a certain role in the provision of an erection.

In addition, there is evidence that an increase in the concentration of  $E_2$  can lead to an increase in venous outflow, which adversely affects the functional state of the smooth muscle of the penis. At the same time, the administration of small doses of estrogens (estradiol valerate at 1 mg per day for 8 weeks) in men with hypogonadism after treatment of prostate cancer led to normalization of blood pressure in them, expansion of the realization of basal NO action and weakening of vasoconstrictive effects of angiotensin II and norepinephrine, which is essential for vascular maintenance of an erection.

The main effects of  $E_2$  on SF in the male body is the maintenance of libido, sexual activity and erection.

**Conclusion.** Thus, the data given above indicate a rather complex mechanism of the effect of  $E_2$  on sexual function in men, which in our opinion is due to the fact that the study of the ratio of T and  $E_2$  is more pathogenetically justified, which more appropriately reflects the balance between these hormones, taking into account their predominantly opposite influence.

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