INVESTIGATION OF PSYCHOTROPIC (ANXIOLYTIC) ACTIVITY OF VAGINAL GEL WITH HOP EXTRACT AND LACTIC ACID IN FEMALE RATS WITH ESTROGEN DEFICIENCY

Sinitsyna O., Pivovarova M.
National University of Pharmacy, Kharkiv, Ukraine
Ksu.sinitsyna@mail.ru

Introduction. The significant place in the menopausal syndrome takes psycho-emotional disorders from 50 to 70% - according to literature. Psychosomatic disorders, difficulty of adequate evaluation and correction in menopausal women evidence the fact that this issue is important today. Severe symptoms of menopausal syndrome at violation of psycho-vegetative sphere appear in the early post-menopause, due to final termination of ovarian function and sharply deficiency of estrogens during this period.

The leading role in the adaptive behaviour of the woman's body belongs to the autonomic nervous system, which under restrictions of endocrine alteration and deficiency of sex hormones is experiencing severe strain, which depend to anatomical and functional proximity of higher vegetative centers, structures of psycho-emotional responsibility and centers of reproductive function regulation. Taking into account the wide range of contraindications to substitutive menopausal hormone-therapy and cautious attitude to it, especially in light of recent WHI (Women Health Investigation), there is a need for continue research of non-hormonal therapy of psychosomatic disorders in menopausal disorders.

Relative contraindications to hormone replacement therapy, which require in-depth examination of patients is hypertension, cholecystitis, cholelithiasis, pancreatitis, pronounced swelling of cardiac and renal origin, and allergy to specific estrogenic drugs. In this regard, the use of preparations containing phytoestrogens, is very relevant. Phytoestrogens have similar to the endogenous estradiol-17-β molecular weight and chemical structure, therefore they interact with the estrogen receptors.

Aim. The objective of this study is to examine the anxiolytic properties of new vaginal gel with hop extract and lactic acid in female rats with hypo-estrogenism.

Materials and methods. Simulation of estrogen deficient state in animals, which are close to such in women in menopause period, was reproduced in bilateral spayed rats with a mass of 190-260 g according Kirshenblat Ya. D. Sham operated animals have been subjected to laparotomy and wound suturing without removal of ovaries.

The animals were divided into 5 groups: intact control; sham operated female; control pathology; spayed rats treated with vaginal gel with hop extract and lactic

acid; spayed animals treated with the comparator agent - vaginal suppositories "Ovestin" containing estriol. Studying drugs were being administered during 28 days after spaying: studying gel in a dose of 0.06 mg/kg, suppositories “Ovestin” - 0.03 mg/kg. The tested combined gel, the main active ingredients of which are hop extract, lactic acid and auxiliary substances, has been developed at D.P. Salo pharmacy drug processing department of the National University of Pharmacy with the lead of Professor L.I.Vishnevskaya.

On the basis of "elevated plus maze" test influence of preparations by vaginal administration on the manifestation of anxiety in the animals was studied. The animal was placed in the center of the maze and its movement was being registered for 5 minutes. Anxiolytic properties were estimated by factors of: the latent period of entry into dark sleeve (s), the length of stay in light sleeves (s), the length of stay in dark sleeves (s) and the number of transitions. Obtained results were processed by the method of variation statistics with using of standard package program “Statistica 6.0”, inter-groups differences was estimated by Student t-test. Differences at $p < 0.05$ were considered as statistically significant.

The studies were conducted in compliance with the rules of the “European Convention for the protection of vertebrate animals used for experimental and scientific purposes” (Strasbourg, 1986).

Results and discussion. The received data show the lack of statistically significant differences between the results of investigations in animals of the intact control groups and sham operated female rats. Spayed rats of control pathology group had aggravating anxiety state and sharply decreased exploratory activity. Thus, input parameters of the latent period of entry into dark sleeve were 5 times less, and length of stay in light sleeve was 2 times higher than of intact animals. The increased anxiety was indicated with 3.5 times less transitions between sleeves of maze compared to the control intact group.

Vaginal administration of the gel with hop phytoestrogen and lactic acid resulted in recovery of mental and emotional condition of the animals and appearance of moderate anxiolytic activity. Duration of stay of rats in dark and light sleeves of the maze and the lack of differences between these indicators in comparison with healthy animals indicated the normalization of their estimated research reflexes. At the same time, the most complete reduction of anxiety state and restoration of research activity were observed in rats, treated with the comparator agent – "Ovestin" vaginal suppositories.

Conclusions. The studied drugs showed almost the same degree of severity of anxiolytic action and normalizing effect on orienting-exploratory activity of animals against the background of the experimental spaying rats.