

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ  
ВИЩИЙ ДЕРЖАВНИЙ НАВЧАЛЬНИЙ ЗАКЛАД УКРАЇНИ  
«БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»**



## **МАТЕРІАЛИ**

**101 – ї**

**підсумкової наукової конференції**

**професорсько-викладацького персоналу**

**Вищого державного навчального закладу України**

**«БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»**

**10, 12, 17 лютого 2020 року**

**Чернівці – 2020**

УДК 001:378.12(477.85)

ББК 72:74.58

М 34

Матеріали 101 – ї підсумкової наукової конференції професорсько-викладацького персоналу вищого державного навчального закладу України «Буковинський державний медичний університет» (м. Чернівці, 10, 12, 17 лютого 2020 р.) – Чернівці: Медуніверситет, 2020. – 488 с. іл.

ББК 72:74.58

У збірнику представлені матеріали 101 – ї підсумкової наукової конференції професорсько-викладацького персоналу вищого державного навчального закладу України «Буковинський державний медичний університет» (м.Чернівці, 10, 12, 17 лютого 2020 р.) із стилістикою та орфографією у авторській редакції. Публікації присвячені актуальним проблемам фундаментальної, теоретичної та клінічної медицини.

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ISBN 978-966-697-843-4

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університет, 2020



with the growth of anaerobic microflora, *B. Bifidum*, *B. Lactis*, a decrease of proinflammatory cytokines in plasma, improved the general condition of patients on Likert scale.

Against the ground of the drug “Alflorex” in patients with irritable bowel syndrome, the functional state of the kidneys was restored with a decrease in the manifestations of tubular proteinuria and increase in proximal reabsorption of sodium ions.

**Semenenko S.B.**

**CIRCADIAN CHARACTERISTIC OF KIDNEY EXCRETORY FUNCTION INFLUENCED  
BY NITROGEN MONOXIDE SYNTHESIS BLOCKADE UNDER PHYSIOLOGICAL  
CONDITIONS OF PINEAL GLAND WITH PECULIARITIES OF MELATONIN EFFECT**

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The features of chronorhythmic alterations of excretory renal function under the physiological conditions of the pineal gland (PG) under the influence of a blockade of nitrogen monoxide synthesis (NO) and melatonin correction were investigated.

The experiments were conducted on 72 mature non-linear albino male rats with their body mass 0,15-0,18 kg. The animals were kept under vivarium conditions at a stable temperature and air humidity fed on a standard dietary intake. The control group included animals (n=36) kept under conditions of usual light regimen (12.00L:12.00D) during 7 days. The experimental group included animals (n=36) injected with N-nitro-L-arginine (L-NNA) in the dose of 20 mg/kg during 7 days under the normal conditions of pineal gland (12.00L:12.00D) and melatonin in the dose of 0,5 mg/kg during 7 days simultaneously. On the 8<sup>th</sup> day the animals were exposed to 5% water load with heated to room temperature water supplied and the parameters of the kidney excretory function under conditions of forced diuresis were investigated.

At blockade of NO synthesis under conditions of melatonin, significant changes in the daily diuresis rhythm were observed. The architectonic rhythm of urination was inverse in relation to the chronograms of animals that were under conditions of hyperfunction of the PG with blockade of synthesis of NO and control animals. The batiphase of rhythm was detected at 12.00 hr, the maximum rhythm displacement was shifted from 8.00 hr to 16.00 hr relative to the control group of animals and in animals that were administered L-NNA in the background of hyperfunction of the PG it was at 20.00 hr. The chronorhythmic rearrangements in animals that blocked the synthesis of NO on the background of hyperfunction of the PG and permanent illumination suggest that the blockade of NO synthesis and the use of melatonin changes the phase structure of the rhythm. The administration of melatonin against the backdrop of oppression of the synthesis NO caused a decrease in the daily diuresis in comparison with the control group. The combination of blockade of synthesis NO with the correction of melatonin in animals with hypo- and hyperfunction of PG in conditions of blockade NO synthesis had no additive effect.

**Tymofiychuk I.R.**

**SEX HORMONES PARTICIPATION IN THE PATHOGENETIC MECHANISMS OF  
ALZHEIMER'S DISEASE**

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In scientific works of recent years increasing attention is paid to the influence of sex hormones on behavioral reactions, and mental activity. There is a lot of evidence that sex hormones are actively involved in the processes of neurogenesis, synaptogenesis, affecting the energy balance of neurons by regulating the functions of mitochondria. The higher incidence of Alzheimer's (AD) in women during menopause causes scientists to think about the influence of sex hormones on the development of neurodegenerative diseases. In this literature review, we set the goal to analyze the



influence of sex hormones on the function and morphology of different brain sections, and especially those structures undergoing neurodegenerative changes during the development of AD.

Alzheimer's Disease is the cause of significant cytoarchitectonic changes in brain structures that are responsible for cognitive function. Different structures vary in different ways in the process of aging and AD, which allows for predicting various pathogenetic mechanisms. AD primarily affects the nerve cells of the temporal lobe of the cerebral cortex and the hippocampus, which are responsible for the transmission of information and consolidation of memory. Damage to frontal lobes are responsible for making decisions, movement, language; parietal lobe that controls language, tactile sensations, spatial and temporal sensations, and tonsils responsible for emotional control. At AD in all of these structures, amyloid plaques and neurofibrillary tangles accumulate. One of the mechanisms of neuroprotective action of estrogens is the reduction of amyloid accumulation. Neurogenesis in the adult brain is active in the nucleus of the hippocampus and subventricular zone. It is significantly reduced after ovariectomy and is restored after the introduction of estradiol. It was believed that steroid hormones are synthesized only in the ovaries and affect the processes of transcription, but it turned out that these hormones are synthesized and in neural chains where they quickly, in minutes, modulate behavioral reactions and regulate spatial memory. The age-related decrease in the concentration of sex hormones is the cause of various neuroendocrine changes, and is manifested by a decrease in brain volumes, a decrease in the size of the neurons, the number of dendrites, an increase in apoptosis, neurodegenerative processes, manifested by a change in behavioral responses. The main mechanism of action of sex hormones is to bind to free highly specific and accessible intracellular receptors of these hormones and to influence the processes of transcription.

An overview of literary sources, which took the decade has shown that in recent years medical science has proven that endogenous estrogens and their receptors play an important role not only in the reproductive system. Estrogens act as powerful neuroprotectors, and scientists and their clinicians consider estrogens as possible medications for neurodegenerative diseases and acute brain damage (stroke, trauma) not only in women, but also in men. The literature review highlighted new data on the influence of estrogens on cerebral blood flow, hormonal effects on mitochondrial function and energy supply. Many questions require a further study, but it is understandable that when choosing strategies and tactics for the treatment of neurological patients, it is necessary to take into account the effects of neurosteroids on CNS structures.

**Yasinska O.V.**

**COMPARATIVE ANALYSIS OF CHANGES IN PROTEOLYTIC ACTIVITY OF BLOOD PLASMA UNDER THE INFLUENCE OF EXOGENOUS MELATONIN AND PHOTOPERIODIC MODELING OF PINEAL HYPERFUNCTION**

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The pineal gland has broad integrative properties. The epiphysis through melatonin, on the one hand, modulates neuroendocrine functions, on the other - its function is regulated by a variety of neurohumoral signals. It is known that melatonin influences metabolic processes, has antiproliferative, antitumor properties, participates in the formation of circadian and circadian rhythms. The coordination of cells within organs and organisms requires intracellular and intercellular signaling cascades, much of which contain proteolytic steps. The use of melatonin as a drug remains a pressing issue in modern medicine. It is important to investigate the nature of the influence of various ways of increasing the content of melatonin in the body on systemic indicators of intercellular integration, in particular proteolytic activity of blood plasma.

The objectives of this work was to perform a comparative analysis of the effect of exogenous melatonin and photoperiodic modeling of pineal gland hyperfunction on the proteolytic processes in the blood plasma of white rats.