

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»**



МАТЕРІАЛИ

**105-ї підсумкової науково-практичної конференції
з міжнародною участю
професорсько-викладацького персоналу
БУКОВИНСЬКОГО ДЕРЖАВНОГО МЕДИЧНОГО УНІВЕРСИТЕТУ
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Матеріали підсумкової 105-ї науково-практичної конференції з міжнародною участю професорсько-викладацького персоналу Буковинського державного медичного університету, присвяченої 80-річчю БДМУ (м. Чернівці, 05, 07, 12 лютого 2024 р.) – Чернівці: Медуніверситет, 2024. – 477 с. іл.

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У збірнику представлені матеріали 105-ї підсумкової науково-практичної конференції з міжнародною участю професорсько-викладацького персоналу Буковинського державного медичного університету, присвяченої 80-річчю БДМУ (м. Чернівці, 05, 07, 12 лютого 2024 р.) із стилістикою та орфографією у авторській редакції. Публікації присвячені актуальним проблемам фундаментальної, теоретичної та клінічної медицини.

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direct consumption of food, and it has also been evidenced that a change in the diet can modify the circadian rhythm of the acid-forming function of the stomach.

Studies on white laboratory rats have shown that when they were fed a high-fat diet between main meals or during their usual rest hours, the excess calories were stored as fat much more readily than the same amount of calories consumed during the main feeding period, leading to obesity and obesity-related diseases such as type 2 diabetes, hypertension, and partially Alzheimer's disease, which can also be linked to obesity and lack of physical activity.

Conclusions. According to scientific research, the consistency of the diet, metabolism and biological rhythms plays an important role in energy exchange. It has been studied that compliance with the diet and the sleep-wake cycle plays an important role in maintaining normal body weight and preventing metabolic diseases, and when the sleep-wake cycle is disturbed. The diet is one of the mediators through which desynchronosis affects the metabolic profile of the body.

Slobodian K.V.

**FUNCTIONAL CHANGES IN THE KIDNEYS OF IMMATURE RATS WITH
SUBLIMATE NEPHROPATHY AT LOADING BY 3% SODIUM CHLORIDE SOLUTION
AND INDOMETHACIN BLOCKADE OF RENAL PROSTAGLANDINS**

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Introduction. As is known from literary sources, under conditions of loading with a 3% sodium chloride solution during sulem nephropathy, a polyuric form of acute renal failure develops in sexually mature rats, which is caused by the maximum mobilization of the compensatory capabilities of prostaglandin E₂ as a vasodilator of the supplying arteriole of the kidneys and a factor with a natriuretic mechanism of action in relation to the mode of water diuresis, for which an oliguric form of acute renal failure is registered.

Blockade of renal prostaglandins by indomethacin under these conditions leads to spasm of renal vessels and the development of oliguria. At the same time, the analysis of the influence of the blockade of renal prostaglandins by indomethacin on indicators of kidney function in sexually immature rats with sulem nephropathy when loaded with a solution of 3% sodium chloride was practically not carried out.

The aim of the study. To find out the effect of blockade of renal prostaglandins with indomethacin on indicators of kidney function in sexually immature rats with sulem nephropathy when loaded with 3% sodium chloride solution.

Materials and methods. The experiments were conducted on 40 white non-linear sexually immature (1-month-old) male rats weighing 0.06–0.08 kg. The functional state of the kidneys was studied under conditions of loading with a 3% sodium chloride solution after 24 hours of the development of sulema nephropathy (subcutaneous administration of sulema at a dose of 5 mg/kg). For this purpose, the studied solution was injected at a temperature of 37 °C in a volume of 5% of body weight using a metal probe to rats in the stomach with subsequent urine collection for 2 hours.

The glomerular-tubular balance was investigated by conducting a correlation analysis between the processes of glomerular filtration, filtration fraction of sodium ions, absolute reabsorption of sodium ions and relative reabsorption of water. Indomethacin, as a blocker of renal prostaglandin production, was administered intragastrically with a probe at a dose of 5 mg/kg in a 1% gelatin solution for 3 days. Statistical data were processed on a computer using the "Statgraphics", "Excel 7.0" and "Statistica" programs.

Results. Changes in the glomerular-tubular balance were found in sexually immature rats with sublimated nephropathy when loaded with a 3% sodium chloride solution in the amount of 5% of body weight under the condition of blocking the production of renal prostaglandins with indomethacin with the loss of positive correlation. The dependence of relative water reabsorption on glomerular filtration, filtration fraction and absolute reabsorption of sodium ions confirm the effect of prostaglandins on the above-mentioned processes in sexually immature rats. A decrease in compensatory capabilities regarding the development of the syndrome of loss of sodium ions in

sexually immature rats in the experiment leads to sodium homeostasis disturbance and the development of hypernatremia.

Conclusions. Assessment of kidney function indicators with sulem nephropathy when loaded with a 3% solution of sodium chloride with a volume of 5% of body weight under conditions of blockade of renal prostaglandin production with indomethacin found inhibition of diuresis, reduction of manifestations of the syndrome of loss of sodium ions with urine against the background of hypernatremia.

Disorders of glomerulotubular balance under experimental conditions are characterized by the loss of positive correlations of relative water reabsorption with glomerular filtration, filtration fraction, and absolute reabsorption of sodium ions.

Yasinska O.V.

FEATURES OF USING DIFFERENT MODELS OF ALTERED PHOTOPERIOD DURATION IN COMBINATION WITH LONG-TERM INTERMITTENT HYPOBARIC HYPOXIA

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Introduction. In experimental studies, the choice of an experimental model is a significant factor in obtaining the expected results to confirm or deny the correctness of the null hypothesis. Our experience of using different lighting modes in experiments to study the effect of hypobaric hypoxia against the background of a changed duration of the photoperiod allows us to assert that the method of modeling the altered photoperiod can significantly affect the results of the experiment.

The aim of the study. Comparison of the influence of different methods of photoperiod duration modeling on indicators of lipid peroxidation, antioxidant system, fibrinolytic and proteolytic activity in rats under conditions of normoxia and long-term intermittent hypobaric hypoxia.

Material and methods. The study was conducted on matured male white non-linear laboratory rats. The level of indicators of lipid peroxidation, the antioxidant system, the activity of fibrinolysis and proteolysis in the blood and tissues of the adrenal glands of rats were determined. The effect of long-term intermittent hypobaric hypoxia was simulated by holding animals in a flow-through respiratory chamber with reduced atmospheric pressure corresponding to an altitude of 4000 m above sea level for 6 hours daily for 7 days under different lighting regimes: natural light, constant 24-hour light, constant 24-hour darkness. Intact animals kept under conditions of normal atmospheric pressure and natural lighting were used as a control group. Natural lighting was considered to be lighting with an equal (12/12 hours) distribution of light-dark phases due to the natural change in lighting intensity during the day (the study was conducted in the corresponding seasons of the year). In addition, a separate group of animals was kept under artificial lighting with an equal (12/12 hours) distribution of light-dark phases (the lighting regime was changed by turning on the light at 9:00 and turning it off at 9:00 p.m.).

Results. Differences in the response of indicators of lipid peroxidation, fibrinolytic and proteolytic activity in the blood and tissues of the adrenal glands of rats, depending on the method of simulating the equal-phase lighting regime, were found. Thus, when using a model with artificial lighting with an equal (12/12 hours) distribution of light-dark phases, a shift of the pro-oxidant-antioxidant balance towards pro-oxidant processes in the tissues of the adrenal glands was found compared to a natural mode of lighting, both under normoxic conditions and under hypoxia. The activity of fibrinolytic processes in the group with artificial lighting had a tendency to increase in rats under conditions of hypoxia at the organ and system levels.

Conclusions. At the stage of developing the design of physiological experiments with the use of natural factors in order to study the functions of the hypothalamic-pituitary-adrenal axis, it is necessary to take into account the features of the model of lighting modes and their possible influence as a separate significant factor.