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**CHRONORHYTHMIC REGULATION OF ACID-REGULATING KIDNEY FUNCTIONS UNDER
BLOCKADE OF NITROGEN MONOXIDE SYNTHESIS**

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One of the most promising areas that make a significant contribution to solving current problems of modern nephrology is the study of chronorigenic organization of the renal function, and participation of nitrogen monoxide in it in particular.

Therefore, the purpose of our study was to find out the features of chronorhythmic regulation of acid-regulating functions of the kidneys under blockade of nitrogen monoxide synthesis.

The experiments were carried out on 72 mature nonlinear male rats with the body weight of 0,15-0,18 kg. The animals were kept in the vivarium under the constant temperature and humidity of air and were fed on as usual. The control group was composed of animals (n=36) which were kept under normal light conditions (12.00L:12.00D) for a week. The group of examination consisted of animals (n=36) which were kept under normal light conditions (12.00L:12.00D) for a week and which were administered to Nw-nitro-L-arginine at the dose of 20 mg / kg of body weight of the rat. On the eighth day the animals were given 5% water test with warm running water at a room temperature. Then the parameters of ion regulating function of the kidneys under conditions of forced diuresis were examined. The experiments were carried out with a 4-hour interval per day. The results were processed by means of "Kosynor-analysis" statistical method and by the methods of variation statistics.

In control animals the kidney function was found to be subordinated to a clear circadian organization. The blockade of nitrogen monoxide synthesis disturbs the circadian organization of most indicators of acid function of the kidneys, causing a significant increase in the average daily urine pH in all periods of the day with disorders of the phase structure of the rhythm, the growth of the mesor of the rhythm of ammonia withdrawal. The detected decrease in the excretion of hydrogen ions against the ground of increased excretion of sodium ions indicated that inhibition of the work of sodium hydrogen anti-port was observed. The daily dynamics of excretion of titrated acids was characterized by disorders in the phase structure of the rhythm. The conducted series of studies enable us to conclude that nitrogen monoxide is an important factor in the regulation of chronorhythms of the acid-regulating function of the kidneys. Lowering the amplitudes of chronorhythms may be a diagnostic criterion for maladaptation processes. Such studies are promising for the improvement of early diagnosis and prevention of renal diseases.

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AGE PECULIARITIES OF THE HORMON REACTION TO INCOMPLETE GLOBAL BRAIN ISCHEMIA

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The secretion of corticosteroids, prolactin, and thyroid hormones is considered to be one of the main endocrine indicators of stress-reactivity. Corticosteroids have an extremely wide range of effects, controlling the processes of development and differentiation of cells, regulating cell proliferation, metabolism changes and development of neuroendocrine modifications, which enables the body to respond to stress in an adequate way and adapt to the conditions of existence. Literature data concerning the response of the blood plasma content of various hormones of stress in the dynamics of ischemic brain damage are isolated, and age characteristics of this process have not been studied at all.

The study was conducted on 26 outbred albino male rats of two age groups - one and three months. Incomplete global ischemia was simulated by bilateral occlusion of the common carotid arteries, isolated from both general carotid arteries, and for 20 minutes they were clipped. The animals were in the experiment for 5 days.

To assess stress-reactivity the levels of cortisol, prolactin, triiodothyronine, thyroxin in blood plasma in BS, POR, MBG, MK were determined as indicators of stress-implementing and stress-limiting mechanisms. In our studies on the 6th day of the post-ischemic period in one-month-old rats significant changes were found regarding the plasma content of prolactin and triiodothyronine in the blood. The level of both hormones increased twice and 1, 8 times respectively. Differences in the constitutive content of hormones in animals of the represented age groups occurred only with respect to prolactin, which was 1.7 times higher in one-month-old rats. The content of the remaining hormones in animals of different ages did not differ. Three-month animals demonstrated delayed hormonal response to ischemia by reduced content of cortisol (1.8 times) and triiodothyronine (1.6 times). Ischemia caused the appearance of age differences for those hormones which constitutive contents did not differ from animals of all ages. Thus, the post-ischemic content of cortisol and triiodothyronine was significantly lower in three-month rats (1.6 and 2.4 times, respectively). The difference in the content of prolactin in rats of different ages under the influence of ischemia increased from 1.7 in control animals to 2.7 in animals after ischemia. The obtained results can be summarized in the conclusions: age differences in the constitutive content of the investigated hormones occurred only with respect to prolactin, which was significantly higher in one-month-old animals; hormonal response to ischemic-reperfusion interference in one-month-old animals consisted of an increase in the plasma content of prolactin and triiodothyronine, and in the three-month period – decrease in the content of cortisol and triiodothyronine, indicating a fundamental age difference.