



Indomethacin was close to diuresis values under the influence of a synthetic opioid and exceeded diuresis in the control group of animals (1.4 times). Consequently, the diuretic effect of Dalargin was maintained against the suppression of the synthesis of prostaglandins in the body.

Similar situation was also observed in the study of the removal of sodium ions by the kidneys. In case of application of Dalargin we observed a probable enhancement of sodium thrush, in case using Indomethacin opposite changes occurred, then with co-application of these preparations the effect inherent in a synthetic opioid prevailed.

Excretion of sodium ions in animals receiving Dalargin and Indomethacin exceeded this index as compared to Indomethacin 5.5 times. Natriuresis was also higher than with a separate application of Dalargin in 2.4 times and exceeded the control group's rates by 3.1 times. Thus, with the combined application of these preparations, the natriuretic effect inherent in Dalargin is retained.

Regarding the effect of Dalargin on the excretion of potassium ions, we observed that against the ground of the prostaglandin synthesis blockade, there was a gain in the calcium in each animal group as compared to that of the control. When comparing each other, these indicators did not differ significantly. Thus, with the use of Dalargin against the ground of the blockade of the synthesis of prostaglandins in the body of rats, inherent Dalargin diuretic and natriuretic activity is maintained. The blockade of the synthesis of prostaglandins does not prevent the implementation of the renal effects of a synthetic opioid.

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**CEREBRAL LIPID PEROXIDATION PROCESSES AND ANTIOXIDANT DEFENCE IN DYNAMIC ASPECT IN RATS WITH STREPTOZOTOCIN-INDUCED DIABETES COMPLICATED BY ISCHEMIC-REPERFUSION LESION OF THE BRAIN**

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According to present views concerning initiation of diabetes mellitus (DM) and its complications oxidative stress possesses a trigger role, which is characterized by exhaustion of the cellular system of the antioxidant defence and increased production of free radicals. Meanwhile numerous attempts to apply antioxidant therapy in case of DM still remain less effective (so called “antioxidant paradox”), which is indicative of the necessity to carry out further studies concerning the nature of oxidative stress against this disease with the purpose to improve pathogenetically substantiated means of struggle against formation of complication with underlying diabetes.

Imbalance of pro-oxidative – antioxidant interrelations plays a valuable role in the development of “ischemic” pathobiochemical cascade in case of acute disorders of the cerebral circulation. DM is known to increase the occurrence of ischemic lesions of the brain and aggravate their course, although pathogenesis of this combined pathology requires a comprehensive study.

The objective of the study was to investigate condition of lipid peroxide oxidation and activity of antioxidant enzymes in the neocortex and fields of the hippocampus of male rats with induced diabetes mellitus in the dynamics of incomplete global ischemia-reperfusion of the brain.

The study was conducted on males of albino nonlinear rats divided into six groups: 1. Control; 2. Rats isolated from the experiment after 20-minute bilateral carotid ischemia with one-hour reperfusion; 3. Rats isolated from the experiment on the 12<sup>th</sup> day after 20-minute bilateral carotid ischemia; 4. Rats with experimental DM; 5. Rats with DM isolated from the experiment after 20-minute bilateral carotid ischemia with one-hour reperfusion; 6. Rats with DM isolated from the experiment on the 12<sup>th</sup> day after 20-minute bilateral carotid ischemia.

DM was simulated by a single intraperitoneal introduction of streptozotocin (Sigma, «Aldrich», 60 mg/kg) to male rats aged 2 months. The period of diabetes with duration of 4 months was considered from the moment of streptozotocin introduction. To imitate incomplete global ischemia-reperfusion of the brain under intraperitoneal narcosis (calypsol, 75 mg/kg) both general carotid arteries were isolated by means of the anterior middle cervical access – they were clipped during 20 minutes and then clips were removed for reperfusion. The animals were taken out from the experiment by means of decapitation under calypsol narcosis. After fixation of the brain in liquid nitrogen using the atlas of stereotactic coordinates the cortex of the frontal and occipital lobes and the hippocampus fields CA1, CA2 and CA3 was taken for the examination. In the homogenates of these structures the content of diene conjugates (DC), Malonaldehyde (MDA), activity of superoxide dismutase (SOD), catalase, glutathione peroxidase (GPO) was determined. Statistical significance of differences was estimated by Student t-criterion for independent sampling. The findings are presented in the form of arithmetic means and standard deviation.

In early ischemic-reperfusion period in all the examined structures of the brain without DM the signs of oxidative stress are found which is manifested by accumulation of lipid peroxidation products against the ground of a considerable decrease of superoxide dismutase (SOD) activity. In rats with DM during this period of observation in all the brain structures except CA3 field there are signs of depression of lipid peroxidation processes and activity of antioxidant enzymes.

On the 12<sup>th</sup> day of ischemic-reperfusion period in rats without DM the content of lipid peroxidation secondary products in the examined brain structures increases against the ground of reduced activity of antioxidant enzymes which is indicative of increasing signs of oxidative stress in this period. In rats with DM in this term of observation the signs of hyporeactivity of the lipoperoxidation/ antioxidant defence system remain unchanged.