constant exposure to light leading to desynchronization of normal circadian rhythms. The biological rhythms are regulated by melatonin, which is produced in the pineal gland in darkness, and besides many physiological effects, it has potent antioxidant action.

Total antioxidant activity together with antioxidant enzymes are commonly used markers of antioxidant status and thus oxidative stress. The capacity of known and unknown antioxidants and their synergistic interaction is assessed, thus providing insight into the delicate balance between oxidants and antioxidants in vivo.

The aim of the work was to study the total antioxidant activity (TAOA) of rats' blood plasma in terms of alcohol intoxication, its combination with constant light exposure and melatonin administration.

Experiments were performed on 32 white male rats weighing 180-230 g, kept under standard conditions and a vivarium diet. Subacute alcohol intoxication was induced by intragastric administration of 40% ethanol in a dose of 7 ml/kg of body weight for 7 days. The light exposure was caused by a constant fluorescent light with an intensity of 1500 lux for 24 hours a day.

We have revealed that alcoholic intoxication was accompanied by a decrease in TAOA by 15% below the control level. Combination of ethanol poisoning with light exposure caused more significant decrease of TAOA of blood plasma (by 27%). It can be related to a decreased level of SH-groups in blood plasma which promotes the non-enzymatic antioxidant effect. The content of SH-groups against the background of alcoholic intoxication and its combination with constant lighting was by 25.6% and 13.3% below the control level correspondingly. This represents a decrease in the adaptive response to oxidative stress related to ethanol poisoning and lack of melatonin under constant light exposure.

The administration of "Vita-melatonin" in a dose of 5 mg/kg daily at 8 p.m. for 7 days contributed to the normalization of TAOA of blood plasma in both experimental groups and SH-groups of alcoholized rats, which have been exposed to light. The alcoholized rats which had received melatonin against the background of normal photoperiod showed only tendency to normalization of SH-groups, but the level was 13% lower than in control.

Thus, melatonin administration contributed to the normalization of total antioxidant activity of rats' blood plasma against the background of alcoholic intoxication and its combination with constant lighting.

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MORPHOLOGICAL CHANGES IN THE CORTEX OF THE KIDNEYS UNDER THE DEVELOPMENT OF ASEPTIC FEVER

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Fever is a pathological process characterized by Kidney disorders of thermoregulation and can occur both in various pathological conditions and under the influence of pyrogenic substances and includes three stages: temperature rise, high temperature and its decrease.

The aim of the study was to find out the peculiarities of morphological changes in the cortical region of the kidneys in the dynamics of aseptic fever under the conditions of pyrogenal administration.

In experiments on 60 males of nonlinear white rats weighing 0.16-0.20 kg, aseptic fever was investigated, which was simulated by a single subcutaneous injection of pyrogenal at a dose of 25 μg/kg. Histological examinations were performed with staining of dewaxed sections with hematoxylin and Slinchenko.

According to the obtained results, morphological changes under conditions of aseptic fever were characterized in the first stage by temperature rise, vacuolar dystrophy of the epithelium of the proximal tubules and small-focal nature of changes in protein properties with a color shift to red, in the second stage, at high temperature, expansion of Shumlyansky-Bowman capsule and dystrophic changes in the epithelium of the distal tubules, and in the third stage, a decrease in temperature by

the moderate expansion of the lumen of the Shumlyansky-Bowman capsule and insignificant dystrophic changes in the epithelium of the proximal tubules.

Thus, these morphological changes in fever are due to the fact that an imbalance develops between heat production and heat transfer, which leads to activation of the renin-angiotensin system and disruption of energy metabolism in the renal cortex.

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EFFECT OF GLUTATHIONE ON OXIDATIVE-ANTIOXIDANT SYSTEM IN THE LIVER OF RATS IN EXPERIMENTAL NEPHROPATHY

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Kidney disease is a worldwide health problem. Notably, oxidative stress of kidney damage is increasingly recognized as a major risk factor not only for renal disease but also for cardiovascular and liver diseases. The antioxidant glutathione is involved in many biological processes such as free radical neutralization, detoxification, maintenance of cellular redox, ascorbic acid and vitamin E regeneration, transport and storage of cysteine. However, to date, there is not enough knowledge about the role of glutathione in damaged liver cells by renal disease, although there are considerable studies about its antioxidants function.

Our work aimed to determine the state of the oxidative-antioxidant system in the liver of rats by experimental nephropathy and the influence of glutathione.

The experiment was conducted on 131 male albino rats with the bodyweight of 0.16-0.18 kg. Experimental nephropathy was modeled by injection of a single intraperitoneal dose of folic acid (250 mg/kg). Glutathione was introduced daily (100 mg/kg) by the intragastric way for 3 and 7 days after the injection of folic acid. All manipulations with animals were carried out according to the European Convention for the Protection of Vertebrate Animals used for Experimental and Other Scientific Purposes and law of Ukraine “On protection of animals from cruelty”. The content of TBA-active products, glutathione, the activity of glutathione peroxidase in the liver was determined.

The type of distribution was estimated using the Shapiro-Wilk test. Significant differences between groups were evaluated by using the Wilcoxon test and Kolmogorov–Smirnov test with $p < 0.05$ considered.

In experimental groups of animals under conditions of nephropathy, the processes of free radical damage of molecules in the liver intensified: increase in the content of TBA-active products by 17% ($p<0,01$) on day 3rd and 27% ($p<0,05$) on 7th day of the experiment, decrease the level of glutathione by 33% ($p<0,01$) on 3rd day and by 23% ($p<0,05$) – on the 7th day of the experiment. The use of glutathione, both on the 3rd and 7th day of the experiment normalizes the studied indicators.

Glutathione peroxidase prevents membrane degradation from ruinous dehydration of peroxidic radicals, catalyzes the degradation of hydrogen peroxide, glutathione oxidation, and due to the changes in the activity of the enzyme, the rate of oxidation of the organism’s thyroid pathways can be reduced. We have set a decrease in the activity of glutathione peroxidase by 11.6% on 3rd day and by 36.5% on 7 day, so that the reduction of glutathione resources has been established. Decreased antioxidant defense and overproduction of reactive oxygen species lead to oxidative stress and energy decrease – one of the key mechanisms of distant organ injury by kidney disease. On the third experimental day, the use of glutathione increased the growth of glutathione peroxidase activity by 7%, and after seven days the increase in activity of the enzyme was increased by 23%.

The received results of the effect of glutathione on the state of the oxidative-antioxidant system of the liver by kidney disease open the possibility to use glutathione for nephro- and hepatoprotective effects, but further research is needed.