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.